



## PMI® Authorized PMP® Exam Prep Course

Version 3.2  
Student Workbook



# Using this Student Workbook

Your instructor will cover a large volume of material in the training. This Student Workbook is designed to help you follow along, give you a space to take notes, and focus on some of the more detailed content your instructor may present.

The thumbnail images of the slides are placemarkers. Please view the slide detail on the PDF copies of the slides provided.

**Please note:** Like projects, your instructor's approach will be unique to them, so while this Student Workbook follows the course design, your instructor's sequence or emphasis may vary.

We have included resources from PMI.org and other relevant sources to further your understanding of the topics or contexts.

Good luck with your preparations.



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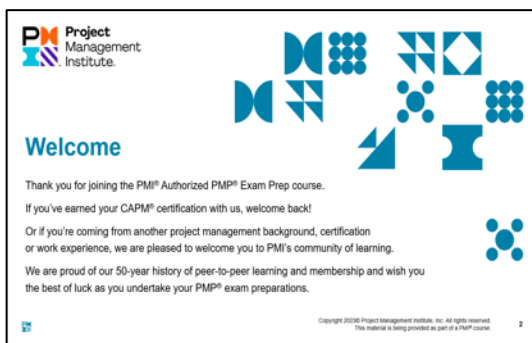
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# INTRODUCTION



## Welcome

Welcome to the course! You'll learn a little more about the Project Management Institute and the PMP® in this short introduction.

This course enables you to further your project management skills, apply a formalized and standards-based approach to project management and prepare for the Project Management Institute (PMI®) Project Management Professional (PMP®) certification exam.




**Your Instructor**

[ Instructor Name Here ]

[ Contact ]

[ Years of X ]

• Click icon to add picture



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## Your Instructor

Meet your instructor!

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## Participant Introductions

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## You, Getting Certified



- Four-year degree
  - 36 months leading projects
  - 35 hours of project management education/training or CAPM® certification
- OR —
- A high school diploma or an associate's degree (or global equivalent)
  - 60 months leading projects
  - 35 hours of project management education/training or CAPM® certification

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*Your interactivity with this workbook will vary, depending on the PDF reader you are using. Blank areas are fillable fields, and you will find several tables in the workbook that you can fill in with notes. Also use the pen or highlighter feature on this document.*

## You, Getting Certified

This course is for individuals who:

- Have on-the-job project management experience, regardless of whether their formal job role is project manager
- Are not certified project management professionals; and
- Might or might not have received formal project management training.

To ensure success in this course, you should have experience with basic project management concepts and the requirements to apply to take the PMP certification exam.

This course fulfills the requirement of 35 hours of project management education/training.

- Four-year degree
- 36 months leading projects
- 35 hours of project management education/training or CAPM® certification

OR

- A high school diploma or an associate degree (or global equivalent)
- 60 months leading projects
- 35 hours of project management education/training or CAPM® certification





*If your instructor does not also show the “Project Economy” video, you can view it at your leisure.*

*Both videos are accessible in the Logical Operations CHOICE dashboard, in case these links are inoperable.*



*To further explore the PDU requirements, you can access the Spotlight on Earning PDUs presentation from the Spotlight tile on the CHOICE Course screen.*

## The Project Economy



[2022 Jobs Report video](#) (2m 33s)

The [“Project Economy” video](#)  
Video (1m: 21s)

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### The PMP® Exam

The PMP® exam includes content that spans the value delivery spectrum, including predictive, adaptive and hybrid approaches. It was updated in 2021 to reflect the fuller complement of skills and approaches found in our dynamic and global profession.

Just like the sides of the PMI Talent Triangle®, we focus on three performance domains in project management:

- People | Power Skills – 42%**
- Process | Ways of Working – 50%**
- Business Environment | Business Acumen – 8%**

## The PMP® Certification Exam

The PMP® exam includes content that spans the value delivery spectrum, including predictive, adaptive and hybrid approaches. It focuses on three performance domains in project management:

- **People | Power Skills – 42%**
- **Process | Ways of Working – 50%**
- **Business Environment | Business Acumen – 8%**

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[PMP® Certification web page](#)

### Learning Topics

The learning topics in this training come directly from the PMP® exam content outline (ECO). The ECO is the basis for the PMP® exam.

The relevant ECO content appears at the end of each topic, for your reference.

The ECO was created by a global selection of PMI members who hold the PMP® certification and work in diverse industries. It includes what they think you need to know to do the job, including experience and broader business concepts.

## Learning Topics

Exam topics and the topics in this course are based on the exam content outline (ECO) document.

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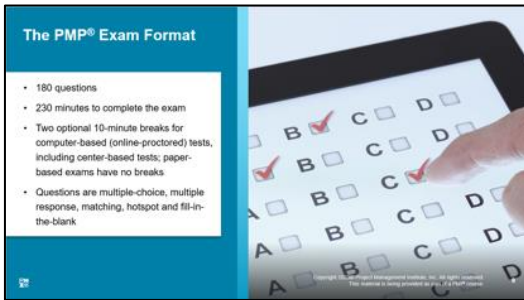
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[PMP Exam reference list, including ECO](#)





[PMP® Certification web page](#)

## The PMP® Certification Exam Format

- 180 questions
- 230 minutes to complete the exam
- Two optional 10-minute breaks for computer-based (online-proctored) tests, including center-based tests; paper-based exams have no breaks
- Questions are multiple-choice, multiple response, matching, hotspot and fill-in-the-blank

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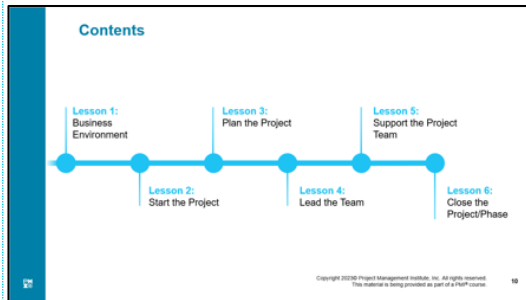
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*This slide depicts the content of the course. Over six lessons, we'll get you ready for the PMP® certification exam.*

## Contents

### **Lesson 1: Business Environment**

Learn foundational project management, organizational and business concepts integral to your role.

### **Lesson 2: Start the Project**

We'll discuss what you need to think about right at the start of a project, in the pre-planning stage – stakeholders, the team, and how to build shared understanding and decide how best to approach the project.

### **Lesson 3: Plan the Project**

Here we go through the steps you'll take to plan scope, schedule, budget, resources, risks, and quality.

### **Lesson 4: Lead the Team**

In this lesson, we focus on your leadership skills.

### **Lesson 5: Support Project Team Performance**

How do you get the best performance from a project team? Here are the tools, techniques, and further leadership skills to help you do that.

### **Lesson 6: Close the Project/Phase**

Finally, we discuss how and when to close a phase or project and the very important topic of benefits realization.





Some key terms appear on the training slides—the definition appears as a click-out on the left. However, if you missed it during class, don't worry! All the key terms in this course are in the glossary.

You'll find these icons throughout this Student Workbook, the Case Study — and on the training slides themselves. They label the action, tool, or characteristic described according to development approach.



#### Predictive icon

Arrows indicate driving work with a high degree of certainty forward



#### Adaptive icon

Circular trajectory of work or development regulated by intervals



#### Hybrid icon

A tailored combination of predictive and adaptive approaches

## About This Course

We've included a glossary of terms that are important for understanding the PMI® approach to project management and which also addresses commonly known global project management and related business concepts and methods.

Glossary definitions have been sourced from PMI Standards and appropriate external sources; some have been tailored by our subject matter experts.

You will see the following icons throughout the slides and this workbook.



Important



Interactive



Use Expert Judgment



Tools/Techniques



Question

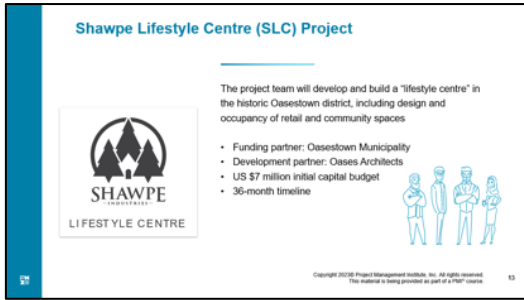
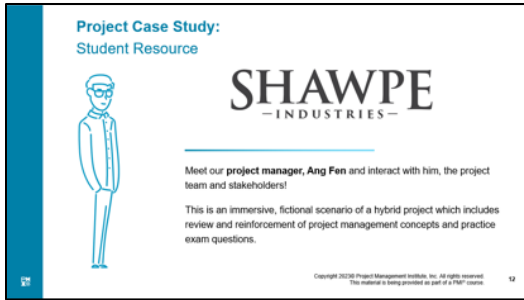


Discussion



Note





*Read more about the case study on the next page!*

## Project Case Study: Student Resource

This course includes a self-study component that will help you visualize and review the concepts you learn from your instructor.

We follow Shawpe Industries, a medium-sized (150 employees) commercial real estate development company, as they undertake their most exciting project yet!

You will see some of the graphics and characters from the case study in the PowerPoint slides and in this Student Workbook.

- Duration: 2 hours
- This case study is self-scored and optional.



## Let's Get to Work!

Make yourself comfortable.

Open the **student copy of the PowerPoint decks** on another screen or window and view the full-size versions alongside this document.

The slides are presented as thumbnails here for your visual reference and place marking.



# Shawpe Lifestyle Centre (SLC) Case Study



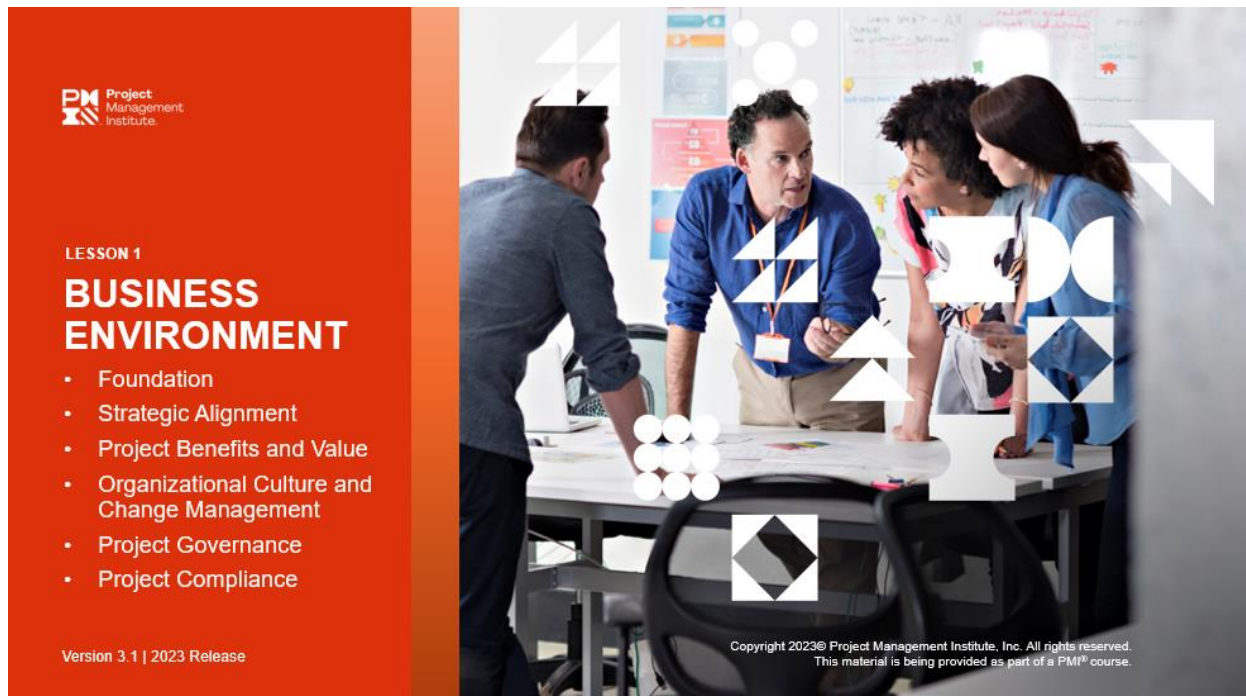
Work alongside a project manager, stakeholders, a product owner, and a project team! Through this case study, you'll learn more about project roles, leadership techniques, how teams use project management artifacts and, of course, project management practices—in a visual and practical way! The case study simulates the scenario-based question approach of the PMP® certification exam questions.



*The SLC project is imagined and aligned with the vision and values in the [PMI Strategic Plan – Shaping the Future - Together \(2021-2025\)](#), which can be downloaded from [PMI.org](#). As a formal introduction to the PMI community, we invite you to peruse it.*



# LESSON 1 | BUSINESS ENVIRONMENT



## Description

This lesson addresses the concepts and business areas that you should understand before starting a project, supporting learning related to the “Business Environment” domain in the exam content outline (ECO) and the “Business Acumen” side of the PMI Talent Triangle.

Central to this lesson is determining the purpose and expectation for the project, as well as the parameters and expectations of the project within the business.

Having a sharp strategic business acumen and a good foundation in modern project management will enable you to quickly determine the purpose and expectation for a project.



*While you will not be tested directly on the foundational concepts from any of the PMI Standards such as the Guide to the Project Management Body of Knowledge (PMBOK® Guide), you should understand the concepts in that standard as well as have familiarity with the PMI lexicon and frameworks.*



# Topics

- A. Foundation
- B. Strategic alignment
- C. Project benefits and value
- D. Organizational culture and change management
- E. Project governance
- F. Project compliance



*For each lesson, your instructor works with a set of learning objectives. This tells you what level and type of knowledge you should have in preparation for the exam.*

## Learning Objectives

- Define 'project' and how it relates to the larger discussion of project management.
  - Discuss the different types of organizational structures and how they relate to your project's management.
  - Discuss the principles of project management.
  - Discuss the principles of agile and how they relate to your project's management.
- Discuss strategic alignment and its elements.
  - Explain the impact of business factors on strategic alignment.
  - Determine how projects align with business strategy.
- Identify types of business value.
- Describe change management theory and its relation to organizational change.
- Define and discuss project governance.
- Explain project compliance and its importance.



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# Lesson 1 Notes

## TOPIC 1A | FOUNDATION

### Topics Covered

- Foundational project management concepts
- Project management principles
- The Agile mindset
- Tailoring – hybrid approaches, processes, and practices in project management



### Topic 1A: Foundation

This section covers the foundational concepts in project management, updated to include content from the 2021 publication of the *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)* – Seventh Edition.

Project Management Professional (PMP)® certification candidates should not expect to be tested directly on some of these concepts from the Seventh Edition, but they should be aware that the exam content is built with an understanding of these concepts



Project

**A project:**

- Creates a unique product, service or result
- Is time-limited
- Drives change
- Enables value creation for a business or organization

Project success depends on:

- Organizational project maturity
- Project manager effectiveness
- Funding and resource availability
- Team member skill levels
- Collaboration and communication within the team and with key stakeholders
- Understanding of the core problem and related needs

## Project

A project:

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Project success depends on:

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Further optional reading:

- ["What is project management?"](#)
- ["History of PMI"](#)

## The Evolution of Project Management

Can you describe, in your own words, how project management has evolved?

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Project Management Life Cycles and Development Approaches		
Description	Key Roles	Value Delivery Proposition
 <p><b>Plan-based approach:</b></p> <ul style="list-style-type: none"> <li>Activities completed in a distinct or linear fashion</li> <li>New phase begins only when the previous phase is completed</li> </ul>	<ul style="list-style-type: none"> <li><b>Project sponsor</b> authorizes project</li> <li>Team led by <b>project manager</b></li> </ul>	<ul style="list-style-type: none"> <li>Deliverables transitioned to customer at completion</li> <li>Value realized in both short and long term</li> </ul>
 <p><b>Change-based approach:</b></p> <ul style="list-style-type: none"> <li>Agile, incremental or iterative development</li> <li>Timeboxed cadence (iterations/sprints) or continuous flow</li> </ul>	<ul style="list-style-type: none"> <li><b>Product owner</b> controls value proposition</li> <li><b>Project team</b> delivers work</li> <li>Process roles include <b>team lead, scrum master, agile coach, facilitator</b></li> </ul>	<ul style="list-style-type: none"> <li>Iterative or incremental delivery to customer during life cycle</li> <li>Regular customer feedback cycle enables continuous development of value toward a "final" product</li> </ul>
Any combination of the above		

## Project Management Life Cycles and Development Approaches

Take notes on this table!

	Description	Key Roles	Value Delivery Proposition
 <p>Predictive</p>			
 <p>Adaptive</p>			
 <p>Hybrid</p>			



**Project Management Office (PMO)**


Many large and established project-oriented organizations have a PMO, but PMOs are not a requirement for project management practice.

PMOs can be:

**Supportive**

- Develop best practices, methodologies, standards and templates.
- Coach, mentor, train, guide project managers

**Controlling**

- Monitor compliance with project management standards, policies, procedures and templates via project audits

**Directive**

- Manage shared resources
- Coordinate communication across projects

**Agile Centers of Excellence (ACoEs) aka Value Delivery Office (VDO)**

ACoEs enable, rather than manage, project efforts:

- Coach teams
- Build agile mindset, skills and capabilities throughout the organization
- Mentor sponsors and product owners

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## Project Management Office

### General notes on PMOs:

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### Types of PMOs:

#### Supportive

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#### Controlling

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#### Directive

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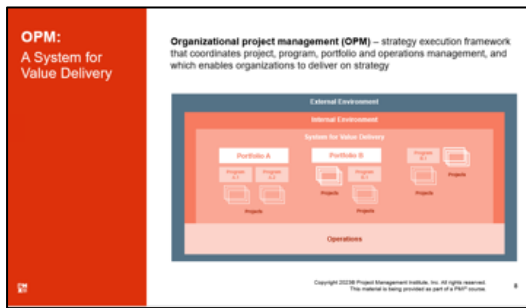
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#### Agile Centers of Excellence (ACoEs)

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## Organizational Project Management (OPM): A System for Value Delivery

- Identify relationships between projects, programs, and portfolios.
- Describe where and how projects reside, in relation to the business' operations and the internal and external environment.
- Explain how this **system** for value delivery works – i.e., systems interactions

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## Projects, Programs and Portfolios

Do you understand how project management lines up with program and portfolio management within an OPM framework?

	Definition/Description	Purpose
Portfolio Management		
Program Management		
Project Management		



Organizational Structures

- Functional
- Matrix
- Project-oriented
- Composite

Organizational structure and governance affects/determines:

- How organizational groups and individuals interrelate
- How much authority the project manager has
- What resources will be available
- How the project will be conducted

## Organizational Structures

Four types:

Financial based structure and governance affects/determines:

- How organizational groups and individuals interrelate
- How much authority the project manager has
- What resources will be available
- How the project will be conducted



Relative Authority in Organizational Structures			
	Functional	Matrix	Project-oriented
Team member loyalty	Functional department	Conflicted loyalty	Project
Team member reporting	Functional manager	Both functional manager and project manager	Project manager
Project manager role	Seldom identified	Coordinator to full project manager	Full-time and responsible
Team member role	Part-time on project	Part-time on project	Full-time on project (preferred)
Control of project manager over team members	Nonexistent (functional manager controls)	Medium – shared with functional manager/sponsor	High

## Relative Authority in Organizational Structures

This slide helps you to better understand the project manager's role in various types of organizational structures. Take notes in the table, below.



*The SLC case study uses the point of view of a project manager to explore the role further!*

	Functional	Matrix	Project-oriented
Team member loyalty			
Team member reporting			
Project manager role			
Team member role			
Project manager's control over team members			





## Activity



*Think of your current or a recent project. Can you identify the organizational structure type and describe how it affects your project in the following ways?*

How organizational groups and individuals interrelate

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*We suggest taking some time to reflect on the discussion points throughout the course, as they help toward providing a scenario-based context for learning topics. Remember that the PMP® certification exam questions are scenario based!*

The project manager's authority

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Resource availability

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How the project is conducted

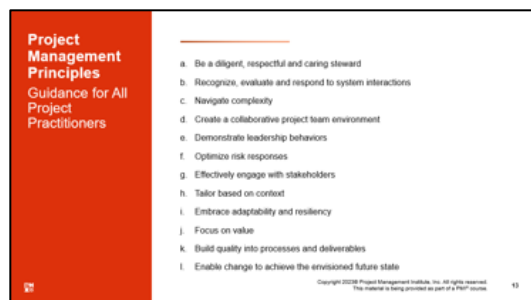
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## Project Management Principles

- Be a diligent, respectful and caring steward
- Recognize, evaluate and respond to system interactions
- Navigate complexity
- Create a collaborative project team environment
- Demonstrate leadership behaviors
- Optimize risk responses
- Effectively engage with stakeholders
- Tailor based on context
- Embrace adaptability and resiliency
- Focus on value
- Build quality into processes and deliverables
- Enable change to achieve the envisioned future state



*The principles are identified by letter on the slide for your instructor's use in referencing them later. However, the principles are not in any order of importance.*



*Further reading: The Standard for Project Management, pp. 21-60. (Inside the PMBOK® Guide – Seventh Edition)*

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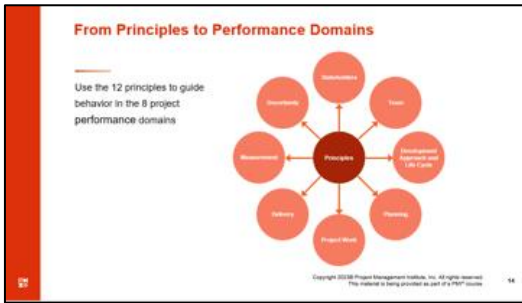
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Further reading in the  
PMBOK® Guide – Seventh  
Edition, pp. 7-129.

## From Principles to Performance Domains

The 8 project performance domains are:

- Stakeholders
- Team
- Development approach and life cycle
- Planning
- Project work
- Delivery
- Measurement
- Uncertainty
- 

A project performance domain is a group of related activities that are critical for the effective delivery of project outcomes.

Collectively, the performance domains represent a project management system of interactive, interrelated, and interdependent management capabilities that work in unison to achieve desired project outcomes.

As the performance domains interact and react to each other, change occurs.

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## Agile

What is agile? Describe it as best you can and then take note of the definition in the glossary.

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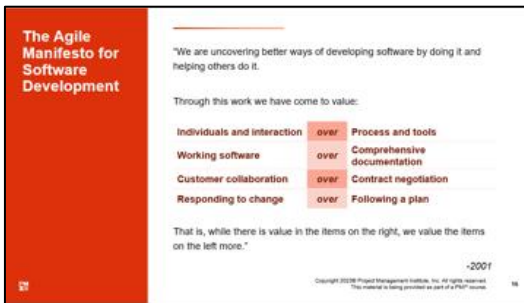
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## The Agile Manifesto for Software Development

What are the four values from the Agile Manifesto?

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How do these values guide agile practice?

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Reference and copyright:  
<https://agilemanifesto.org>



**Principles  
Behind the  
Agile  
Manifesto  
1 to 6**

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
4. Businesspeople and developers must work together daily throughout the project.
5. Build projects around motivated individuals. Give them the environment and support they need and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

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## Principles Behind the Agile Manifesto: 1-6

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
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6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

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Principles  
Behind the  
Agile  
Manifesto  
7 to 12

7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity – the art of maximizing the amount of work not done – is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

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## Principles Behind the Agile Manifesto: 7-12

7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity – the art of maximizing the amount of work not done – is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

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Agile:  
The “Far Side” of  
Adaptive  
Approaches



### “Doing Agile vs. Being Agile”

Agile means:

- Iterations are likely to be shorter
- Product is more likely to evolve based on stakeholder feedback

Still used for software development, and agile principles have been applied to other kinds of development projects, vis-à-vis the agile mindset

- Adopt a flexible, change-friendly way of thinking and behaving
- Understand the purpose of these practices
- Select and implement appropriate practices based on context
- Internalize agile values, mindset and behavior

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## Agile: The “Far Side” of Adaptive Approaches

What’s the difference between “doing agile and being agile?”

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In general, agile means:

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Explain how agile software development principles are applied to other kinds of development projects, vis-à-vis *the agile mindset*:

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Tailor  
Projects to  
Contexts



Because each project is unique, we adapt methods to the unique project context to determine the most appropriate ways of working to produce the desired outcomes.

 Tailor iteratively and continuously throughout the project

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## Tailor Projects to Contexts

Define ‘tailoring’ and describe how it is done:

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## Tailor Hybrid Approaches, Processes, Practices and Methods



Apply product knowledge, delivery cadence and awareness of the available options to select the most **appropriate development approach**

Tailor **processes** for the selected life cycle and development approach; include determining which portions or elements should be added, modified, removed, blended, and/or aligned

Tailor **practices and methods** to the environment and culture

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## Tailor Hybrid Approaches, Practices, and Methods

Notes on what we mean by 'hybrid' in project management:

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Relationship between hybrid and tailoring:

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### Topics Covered

- Foundational project management concepts
- Project management principles
- The Agile mindset
- Tailoring – hybrid approaches, processes and practices in project management

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## End of Topic 1A

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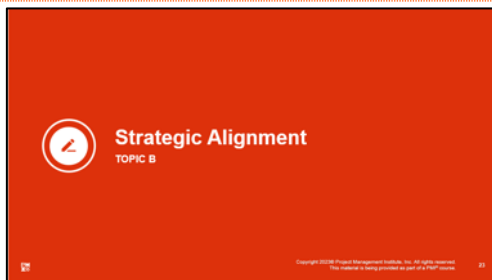
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## TOPIC 1B | STRATEGIC ALIGNMENT

### Topics Covered

- Define strategic alignment and business acumen
- Follow guidelines for effective business decision-making
- Explore organizational influences on projects
- Explain how projects align with broader organizational strategy and global trends

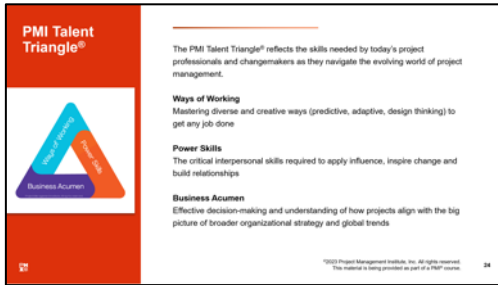


### Topic 1B: Strategic Alignment

Professionals at all levels need to be able to cultivate effective decision-making skills and understand how their projects align with the big picture of broader organizational strategy and global trends.

And because today's projects demand a broad set of skills and capabilities, PMI will continue to focus on giving you the tools and insights you need to develop new skills and tackle your next project challenge.





## PMI Talent Triangle®

Take notes on:

- Way of Working
- Business Acumen
- Power Skills

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*Further information*  
["PMI Talent Triangle®"](#)





*Identify any gaps in your knowledge and plans for how to fill them:*

## Strategic Alignment and Business Management Skills

Reflect on these questions and skill sets for project professionals.

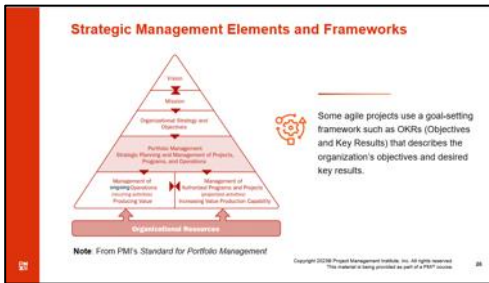
Do you:

- Know your organization's strategic plan?
- Understand how project goals matter to an organization's long-term vision and mission?
- See a high-level overview of the organization?
- Have a working knowledge of business functions?
- Have pertinent product and industry expertise?

Can you:

- Explain the essential business aspects of a project?
- Work with SMEs and a sponsor to develop an appropriate project delivery strategy?
- Implement strategy to maximize the business value of a project?





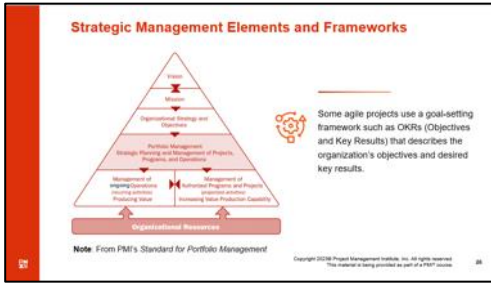
## Strategic Management Elements and Frameworks

- **Vision:** Where the business wants to go (aspirational)
- **Mission:** Its pre-established objective or purpose
- **Objectives:** Defined areas of pursuance
- **Goals:** Milestones, resources
- **Strategies:** Resources used to accomplish organizational purpose
- Programs/projects
- Operation procedures (SOPs)



Note: From PMI's Standard for Portfolio Management





## Organizational Influences

Define and describe Enterprise Environmental Factors (EEFs)

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Define and describe Organizational Process Assets (OPAs)

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Get to Know the External Business Environment


Use frameworks or prompts to understand external factors that can introduce risk, uncertainty, or provide opportunities and affect the value and desired outcomes of a project.

- **PESTLE:** Political, economic, socio-cultural, technical, legal, environmental
- **TECOP:** Technical, environmental, commercial, operational, political
- **VUCA:** Volatility, uncertainty, complexity, ambiguity

In addition, review:

- Comparative advantage analysis
- Feasibility studies
- SWOT (strengths, weaknesses, opportunities and threats) analysis
- Assumption analysis
- Historical information analysis
- Risk alignment with organizational strategy

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## Get to Know the External Business Environment

PESTLE is an acronym for:

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TECOP is an acronym for:

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VUCA is an acronym for:

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What are other tools used to understand the external business environment? Include any your instructor mentions or that you know.

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## Internal Business Environment Factors

Organizational changes can dramatically impact

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Which project roles need to be familiar with business plans, reorganizations, process changes and other internal activities?

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Internal business changes might cause:

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OPAs and EEFs	OPAs	EEFs
	<b>Processes, policies and procedures</b> Examples— <ul style="list-style-type: none"> <li>Organizational charts</li> <li>Procurement rules</li> <li>Hiring and onboarding procedures</li> </ul>	<b>Internal</b> Examples— <ul style="list-style-type: none"> <li>Resource capabilities</li> <li>Organizational culture</li> <li>IT software</li> <li>Distribution of facilities</li> </ul>
	<b>Organizational knowledge bases</b> Examples— <ul style="list-style-type: none"> <li>Engineering wikis</li> <li>Libraries or archives</li> <li>Lessons learned repositories</li> </ul>	<b>External</b> Examples— <ul style="list-style-type: none"> <li>Marketplace conditions</li> <li>Laws, regulations and standards</li> <li>Operating conditions</li> <li>Social and cultural influences</li> </ul>

## OPAs and EEFs

### OPAs

Examples of processes, policies, and procedures:

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Examples of organizational knowledge bases:

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### EEFs

Examples of **internal** EEFs:

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Examples of **external** EEFs:

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**Activity:**  
Identify OPAs and  
EEFs

Project name: Shawpe Lifestyle Centre

List of EEFs and OPAs:

- a. Economic demand for a new shopping area
- b. Historical society (conservation) building regulations
- c. Local neighborhood demand for a better town center
- d. Archive of past large infrastructure projects
- e. Approved vendor and contractors list
- f. Tenant selection process

Which are EEFs? Which are OPAs?

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## Activity: Identify OPAs and EEFs

- a. Economic demand for a new shopping area
- b. Historical society (conservation) building regulations
- c. Local neighborhood demand for a better town center
- d. Archive of past large infrastructure projects
- e. Approved vendor and contractors list
- f. Tenant selection process

Which are OPAs and which are EEFs?

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**Topics Covered**

- Define strategic alignment and business acumen
- Follow guidelines for effective business decision-making
- Explore organizational influences on projects
- Explain how projects align with broader organizational strategy and global trends

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## End of Topic 1B

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## TOPIC 1C | PROJECT BENEFITS AND VALUE

### ECO Coverage

- 3.2 Evaluate and deliver project benefits and value
  - Investigate that benefits are identified (3.2.1)
  - Evaluate delivery options to deliver value (3.2.4)
- 2.1 Execute project with the urgency required to deliver business value
  - Assess opportunities to deliver value incrementally (2.1.1)



### Topic 1C: Project Benefits and Value

Project managers need to think strategically and ensure that project results provide the expected outcomes (benefits and values) to the organization.

These benefits and values should be understood at the beginning of the project, reassessed throughout the project effort, and validated at the end of the project – even though in many cases the actual determination of the benefit will not be apparent until long after the project has been completed.



### Business Value

- The net quantifiable benefit (tangible and/or intangible) identified from a business endeavor
- Part of the objectives or description of the project in the initiating agreements
- Benefits realization is based on declared business value



Business Value

Define business value

Describe how projects deliver business value:



## Examine Business Value

- Communicate with stakeholders, do the research and use expert knowledge
- Examine, evaluate and confirm to determine exactly what is or can be of value!

Look especially at:

- Shareholder value (publicly traded companies) or business growth (private)
- Customer value
- Employee knowledge
- Channel or business partner value

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## Examine Business Value

How do project professionals examine business value?

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Where in the business should you look to understand how a project delivers value?

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## Types of Business Value



Financial Gain



New Customers



Social Benefit



First to Market



Improvement  
Technological,  
process, etc.



Regularization  
Alignment or  
compliance with  
standards and  
regulations

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## Types of Business Value

Describe each of these types of business value; think of an example of each.





Financial gain



New customers



Social benefit



First to market



Improvement (technological,  
process, etc.)



Alignment or compliance  
with standards or  
regulations



**Needs Assessment**  
Obtain Data for the Project

- Usually performed by a **business analyst**
- Precedes the business case
- Involves understanding of:
  - Business goals and objectives
  - Issues and opportunities
- Recommends proposals to address:
  - What should be done
  - Constraints, assumptions, risks and dependencies
  - Success measures
  - Implementation approach

**Note:** From Business Analysis for Practitioners: A Practice Guide

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## Needs Assessment: Obtain Data for the Project

Who usually performs a needs assessment?

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What kind of data does a needs assessment include?

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How does a needs assessment help to direct a project?

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Business Documents

- Are developed prior to project start (usually by a business analyst or key project stakeholder)
- Contain information about the project's objectives and contribution to the business goals
- Help the business to determine whether a project is worth the required investment of time, money, and resources

Review the business documents periodically

Business Documents  
Business Case and Benefits Management Plan

**Business case:** justifies project and establishes boundaries

- Cost-benefit analysis
- Business need
- Quality specifications
- Schedule or cost constraints

Acceptance of the business case usually leads to creation of the project charter

**Benefits management plan** should include:

- Processes for creating, maximizing and sustaining project benefits
- Time frame for short- and long-term benefits realization
- Benefits owner or accountable person
- Metrics
- Assumptions, constraints and risks

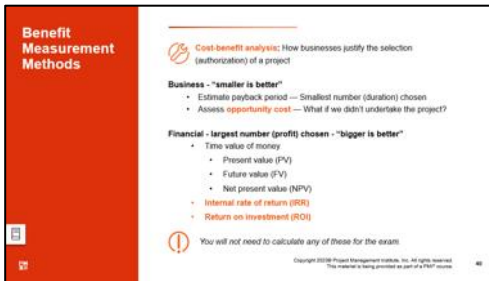
This is a business document, not part of the project management plan

Business Documents: Business Case and Benefits Management Plan

What does the business case establish?

What should the benefits management plan include?





Though you won't need to do these calculations on the exam, you should know that for business-based benefit measurement methods, "smaller is better" and for financial-based benefit measurement methods, "bigger is better."

## Benefit Measurement Methods

### Business-based

- Estimate payback period:

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- Assess opportunity cost:

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### Financial-based

- Cost-benefit analysis

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- Opportunity cost

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- Internal rate of return (IRR)

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- Return on investment (ROI)

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### Project Selection Using Present Value (PV) and Net Present Value (NPV)

PV applies to projects that span several time periods when the value of money might change – e.g., inflation

Factors to determine PV include:

- Future value
- Interest rate
- Number of periods

Net present value (NPV):

- Is used for capital budgeting
- Accounts for inflation and macro-economic change (discount rate)
- Compares the value of a currency unit today to the value of the same currency unit in the future

Year	0	1	2	3	4
Net Cash Flows	-1200	+400	+800	+400	+1200
Factor	1	.91	.83	.75	.68
Net Present Value	-1200	+364	+664	+300	+816

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## Project Selection Using Present Value (PV) and Net Present Value (NPV)

Ensure that you understand how estimates change for multi-year projects (PV) and how the formulas are used to select projects.

Factors to determine PV include:

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NPV – definition and description of use

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This information is normally provided to the project manager by the financial organization. You will not need to calculate this for the exam.



## How OKRs Help Deliver Business Value



- Start with organizational objectives
- Decide key desired results
- Refine further with objectives and key results (OKRs)
  - Objectives are goals and intents
  - Key results are time-bound and measurable milestones under these goals and intents
- OKR best practices:
  - Support each objective with between 3-5 measurable key results
  - Aim for 70% success rate to encourage competitive goal-making. A 100% success rate should be re-evaluated as not challenging enough
  - Write OKRs that are action-oriented and inspirational and include concrete, measurable outcomes

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## How OKRs Help Deliver Business Value

### Define OKR

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### OKR best practices:

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Optional further reading on this topic:

["Strategic Planning and Lean Portfolio Management"](#)



### Incremental Value Delivery



An incremental development approach can:

- Enable value delivery sooner
- Attain higher customer value and increased market share
- Allow partial delivery (or previews) to customers
- Enable early feedback, allowing for adjustments to the direction, priorities and quality of the product

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## Incremental Value Delivery

What is incremental value delivery?

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Benefits of an incremental development approach include:

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### ECO Coverage



**3.2 Evaluate and deliver project benefits and value**

- Investigate that benefits are identified (3.2.1)
- Evaluate delivery options to deliver value (3.2.4)

**2.1 Execute project with the urgency required to deliver business value**

- Assess opportunities to deliver value incrementally (2.1.1)

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## End of Topic 1C

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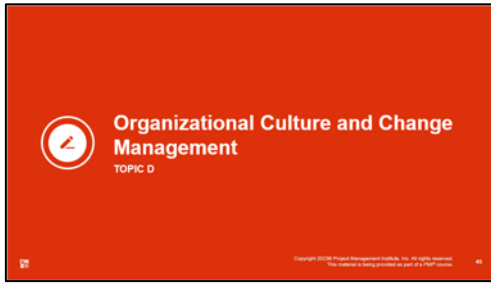


## TOPIC 1D | ORGANIZATIONAL CULTURE AND CHANGE MANAGEMENT

### ECO Coverage

- 3.4 Support organizational change
  - Assess organizational culture (3.4.1)
  - Evaluate impact of organization change to project, and determine required actions (3.4.2)
  - Evaluate impact of the project to the organization and determine required actions (3.4.3)





## Topic 1D: Organizational Culture and Change Management

Projects create and deliver change, and change is often the catalyst for the authorization of a project. Arguably, change is the single biggest factor in business decisions.

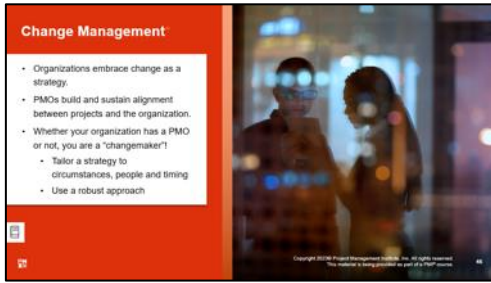
Envisioning your project as part of the organization in which it “lives” means being part of any change initiative that the organization takes. This will mean adapting your project as well as realigning it with the changing business objectives.

In addition, it is important to understand how organizations typically work, then consider a few different project management setups, and finally how project managers and PMOs roll out and support change initiatives in organizations.



*PMI calls this the systems approach to project management. It includes an understanding of change management. However, this is NOT the same as change control management.*





*This is **not** the change control management topic.*



*Further reading:  
PMBOK® Guide –  
Seventh Edition,  
section X3.3*

## Change Management

Definition and description:

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How does organizational culture affect change and change management?

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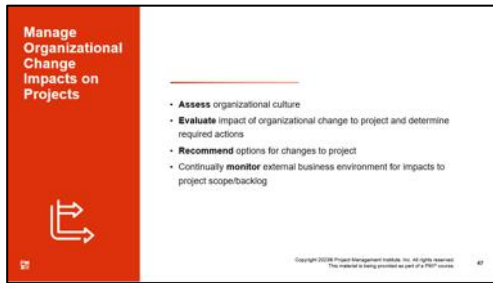
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## Manage Organizational Change Impacts on Projects

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Further reading:

[Managing Change in Organizations: A Practice Guide \(2013\)](#) -  
(Requires PMI membership for login)



## Get to Know Organizational Cultures and Styles


- View of leadership, hierarchy, and authority
- Shared vision, beliefs, and expectations
- Diversity, equity, and inclusion practices
- Risk tolerance
- Regulations, policies, and procedures
- Code of conduct
- Operating environments
- Motivation and reward systems

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Risk, Culture and Change in Organizations


Risk threshold and appetite are shaped by diverse values of:

- Country/region
- Industry/sector
- Leadership
- Project team

These must be understood with care to:

- Establish effective approaches for initiating and planning projects
- Identify the accepted means for getting work done

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## Risk, Culture and Change in Organizations

Risk threshold and appetite are shaped by diverse values of:

- Country/region
- Industry/sector
- Leadership
- Project team

Describe how understanding risk, culture and change helps organizations:

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Change Management Framework


**"Organizational change requires individual change"**

The **ADKAR**® model names five milestones an individual must achieve in order to change successfully:

- **A** – Awareness of the need for change
- **D** – Desire to support the change
- **K** – Knowledge of how to change
- **A** – Ability to demonstrate new skills and behaviors
- **R** – Reinforcement to make the change stick

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## Change Management Framework

Describe the ADKAR® change management framework:

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Did your instructor mention / do you know of any others?

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**Actions to Support Change**


DO

- **Coach co-workers to support the business** — patience and compassionate mentoring are key
- **Enable an agile operating system** - Coach team members in agile to facilitate adoption of a change-centered mindset
- **Keep knowledge current** — Continuously improve processes and knowledge

DON'T

- **Force changes** — Involve and consult; aim to secure buy-in to the reasons for change
- **Alienate resisters** — Change can breed conflict, so proceed carefully

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## Actions to Support Change



DO:



DON'T:





### Plan for Change

Define the knowledge transfer, training and readiness activities required to implement the change brought by the project

- Include an **attitudinal survey** to find out how people are feeling
- Create an **informational campaign** to familiarize people with changes
- Be open and transparent about potential effects of the changes
- Consider creating a rollout plan



The rollout plan is not a project management plan component.



## Plan for Change

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[\*PMI's resources on change management\*](#)



### Organizational Transformation for Project Practitioners

- A **North Star statement** articulates the vision and strategic objectives
- Customer insights** and global megatrends
- A flat, adaptable cross-functional **transformation operating system**
- Internal volunteer champions** (not external consultants)
- Inside-Out Employee Transformation** (similar to ADKAR)

The Brightline Transformation Compass and five building blocks of transformation - an enterprise-level change management framework

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Learn more about the [Organizational Transformation course for PMP® certification holders here \(Foundation level\)](#)

## Organizational Transformation for Project Practitioners

Five Building Blocks for organizational transformation:

- North Star statement
- Customer insights and global megatrends
- Transformation operating system
- Internal volunteer champions
- Inside-Out Employee Transformation

Brightline® Compass

Organizational transformation, aka an enterprise-level change management framework requires:

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### ECO Coverage

3.4 Support organizational change

- Assess organizational culture (3.4.1)
- Evaluate impact of organization change to project, and determine required actions (3.4.2)
- Evaluate impact of the project to the organization and determine required actions (3.4.3)

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End of Topic 1D



## TOPIC 1E | PROJECT GOVERNANCE

### ECO Coverage

- 2.14 Establish project governance structure
- Determine appropriate governance for a project (e.g., replicate organization governance) (2.14.1)
  - Define escalation paths and thresholds (2.14.2)





Further reading on this topic in the *PMBOK® Guide – Seventh Edition*, Section 2.2 Organizational Governance Systems

## Project Governance

Take note of the definition and benefits:

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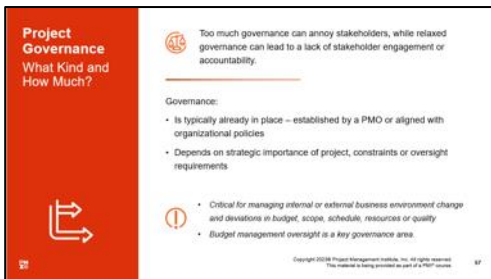
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## Project Governance: What Kind and How Much?

Guidelines for project manager or project team include:

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### Project Governance: Components

#### Processes for:

- Change
- Communication
- Documentation — i.e., project management plan
- Decision-making
- Internal stakeholder alignment with project process requirements
- Review and approval of changes above project manager authority level
- Risk and issue identification, escalation and resolution
- Stage gate or phase reviews
- Guidelines for aligning project governance and organizational strategy
- Project life cycle and development approach
- Project organization chart with roles
- Project success and deliverable acceptance criteria
- Relationship among project team, organizational groups and external stakeholders

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## Project Governance Components

### Processes for:

- Change
- Communication
- Documentation — i.e., project management plan
- Decision-making
- Internal stakeholder alignment with project process requirements
- Review and approval of changes above project manager authority level
- Risk and issue identification, escalation, and resolution
- Stage gate or phase reviews
- Guidelines for aligning project governance and organizational strategy
- Project life cycle and development approach
- Project organization chart with roles
- Project success and deliverable acceptance criteria
- Relationship among project team, organizational groups, and external stakeholders

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Governance in Adaptive Projects



Can:

- Document outputs and expectations
- Provide a clear view of project status from:
  - Defined iteration/sprint expectations and outputs
  - Releases tied to specific dates
  - "Real-time" monitoring of project output through daily standups

Iterative approaches enable quicker and less costly identification of value-based outputs than predictive

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## Governance in Adaptive Projects

How is governance handled in adaptive projects?

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Governance Board  
aka Project Board  
or Steering Committee



Does anyone have experience with a project governance board? Describe how it works with your project.

- Provides project oversight
- May include project sponsor, senior managers and PMO resources
- May be responsible for:
  - Reviewing key deliverables
  - Providing guidance for project decisions

Projects that use Scrum or SAFe® use intermediary governance boards to liaise between the project and organizational governance

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## Governance Board (aka Project Board or Steering Committee)

Describe what a project governance board does:

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Governance Defines Escalation Procedures

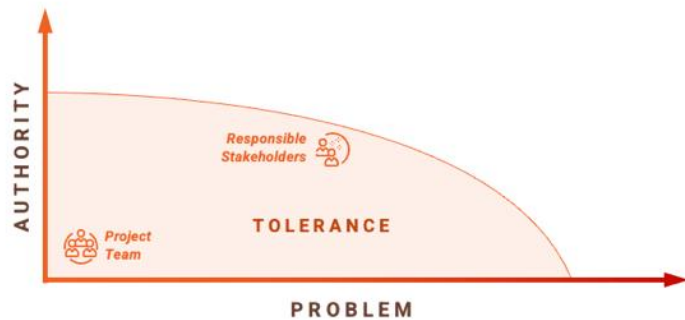
For problems outside a project's **thresholds** or **tolerance** levels:

- **Escalate** to the responsible stakeholder who is authorized to take action;
- But if an issue is within the threshold, then work with the team to find a resolution.



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## Governance Defines Escalation Procedures



Threshold (Define and indicate where this is on the graphic.)

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Tolerance

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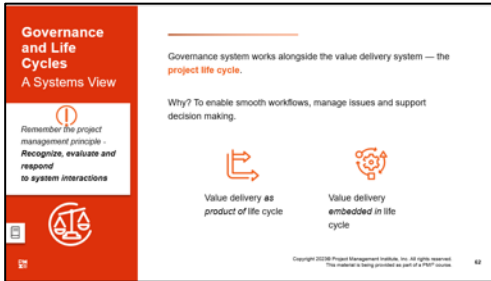
Escalate

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## Governance and Life Cycles: A Systems View

Project life cycle definition:

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How does governance differ according to life cycle?

Predictive:

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Adaptive:

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Governance Checkpoints: Phase Gates and Iterations	
Predictive	Adaptive
Split work into phases	Split work into releases
Review results at a phase gate – aka, governance gate, kill point, or tollgate	Review results at end of iterations
Decide: <ul style="list-style-type: none"> <li>Continue to the next phase</li> <li>Continue with modifications, or</li> <li>End a project or program</li> </ul>	Gather feedback and take action to improve value in next iteration
	Continue until customer's acceptance criteria – e.g., definition of done or MVP – is satisfied or project ends

## Governance Checkpoints: Phase Gates and Iterations

 Phase

 Phase Gate

 Minimum Viable Product (MVP)



Project Phases Relationships

Phases produce one or more deliverables; outputs from one phase are generally inputs to the next phase. They can have **sequential** or **overlapping** relationships.

PHASE 1 PHASE 2 PHASE 3

0 6 12 18 24 30 36

PHASE GATE

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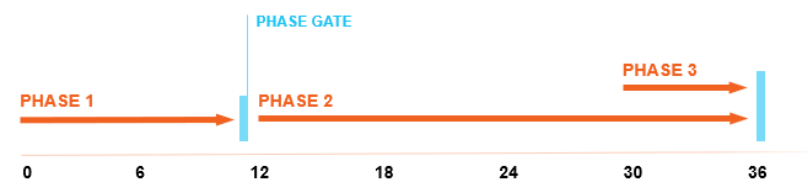
Project Phases: Relationships

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Sequential:

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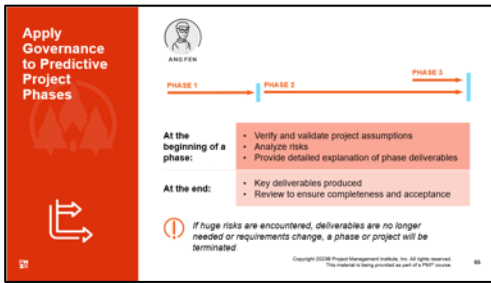
Overlapping:

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## Apply Governance to Predictive Project Phases

What do you need to do at the beginning of a phase?

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And at the end?

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### ECO Coverage

#### 2.14 Establish project governance structure

- Determine appropriate governance for a project (e.g., replicate organization governance) (2.14.1)
- Define escalation paths and thresholds (2.14.2)

## End of Topic 1E



## TOPIC 1F | PROJECT COMPLIANCE

### ECO Coverage

- 3.1 Plan and manage project compliance
- Confirm project compliance requirements (e.g., security, health and safety, regulatory compliance (3.1.1)
  - Classify compliance categories (3.1.2)
  - Analyze the consequences of non-compliance (3.1.5)



Larger, organizational-level compliance issues are discussed here. How to plan for compliance is discussed in Lesson 5, topic G, “Quality.”

### Topic 1F: Project Compliance

•

Compliance requirements must be understood and prioritized as the most important to deliver for a project.

Risk of noncompliance is one of the most serious threats to a project.

During a project, compliance requirements may change. The onus is on the project team to be aware and proactive about compliance.

This is part of your stewardship of a project — that is the responsibility you undertake to care for the health of the project you lead; Stewardship is one of the project management principles named and discussed earlier in this lesson.



Compliance

- Internal and external standards include:
  - Government regulations
  - Corporate policies
  - Product and project quality
  - Project risk
- PMO monitors compliance at organizational level
- Project team is also responsible for project activity-related compliance, including:
  - Quality of processes and deliverables/products
  - Procurement and work by vendors

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## Compliance

Include internal / external standards such as:

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Roles / responsibilities:

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Compliance Requirements

**Legal or regulatory constraints include:**

- Requirements for specific practices
- Standards
- Privacy laws
- Handling of sensitive information

**Quality:** Tailor to your project — How much process rigor and quality control is relevant?


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## Compliance Requirements

Legal or regulatory constraints include:

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Quality-related:

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Compliance  
Categories  
Classification

- Environmental risks
- Workplace health and safety
- Ethical/non-corrupt practices
- Social responsibility
- Quality
- Process risks

Categories vary based on:

- Industry and solution scope
- Unique legal and regulatory exposure

## Compliance Categories Classification

- Environmental risks
- Workplace health and safety
- Ethical/non-corrupt practices
- Social responsibility
- Quality
- Process risks



*Why do we classify compliance matters? What problem does that help to solve?*

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Categories vary based on:

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Compliance Threats  
How to Investigate

- Where/who in the organization handles compliance?
- What legal or regulatory requirements impact the organization? e.g., workplace safety, data protection, requirements for professional memberships
- What is the organization's **quality policy**?
- Are the team and stakeholders aware of compliance matters?

# Compliance Threats: How to Investigate

Guidelines or questions to ask:

What is a quality policy?

Treat Compliance as a Project Objective

- Proactively track and manage risks for compliance requirements
- Be prepared to perform quality audits
- Continuously validate legal and regulatory compliance for deliverables
- Check compliance before the end of the project to avoid transferring issues
- In a risk or dedicated compliance register, include:
  - The identified risk
  - A responsible risk owner
  - Impact of a realized risk
  - Risk responses

 Larger organizations or those in highly regulated industries typically have a compliance department or officer.

# Treat Compliance as a Project Objective

Explain why compliance is so important to project health:

Actions to take include:



Compliance  
Five Best Practices

- **Documentation:** Updated compliance needs and risks
- **Risk planning:** Prioritize compliance in risk planning
- **Compliance council:** Includes quality/audit specialists and relevant legal/technical specialists
- **Compliance audit:** Formal process
- **Compliance stewardship:** It's your responsibility!

## Compliance: Five Best Practices

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Interactive/Activity

Let's talk about compliance.

- Does your organization have a quality policy?
- Do you know where to find the quality policy or standards for your projects?
- What kinds of compliance activities are you involved with?

## Activity: Think About Compliance

- Does your organization have a quality policy?
- Do you know where to find the quality policy or standards for your projects?
- What kinds of compliance activities are you involved with?

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ECO Coverage

3.1 Plan and manage project compliance

- Confirm project compliance requirements (e.g., security, health and safety, regulatory compliance (3.1.1))
- Classify compliance categories (3.1.2)
- Analyze the consequences of non-compliance (3.1.5)

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## End of Topic 1F

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End of Lesson 1

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## End of Lesson 1

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## Lesson 2: Start the Project

### Description

Lesson 2 includes topics in the “People” and “Process” domains of the ECO, but covers knowledge related to all three sides of the Talent Triangle – e.g., exploration of project team and stakeholder roles and tailoring development approaches to a project so that it delivers value for the business.

Let’s review the concepts and processes related to starting a project!



## Learning Objectives

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- Define and discuss stakeholders and the most effective ways to communicate with them.
- Explain the best ways to form a team.
- Describe how to build the most effective understanding of a project and how doing so relates to executing a project successfully.
- Explain how predictive and adaptive project life cycles work; explain what a hybrid development approach is.
  - Decide which kind of development approach or life cycle is best suited for work.



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## Topics

- A. Identify and engage stakeholders
- B. Form the team
- C. Build shared understanding
- D. Determine project approach



# Lesson 2 Notes

## TOPIC 2A | IDENTIFY AND ENGAGE STAKEHOLDERS

### ECO Coverage

- 1.9 Collaborate with stakeholders
  - Evaluate engagement needs for stakeholders (1.9.1)
  
- 2.4 Engage stakeholders
  - Analyze stakeholders (power interest grid, influence, impact) (2.4.1)
  - Categorize stakeholders (2.4.2)
  - Develop, execute, and validate a strategy for stakeholder engagement (2.4.4)
  
- 2.2 Manage communications
  - Analyze communication needs of all stakeholders (2.2.1)
  - Determine communication methods, channels, frequency, and level of detail for all stakeholders (2.2.2)





## Identify and Engage Stakeholders

TOPIC A

## Topic 2A: Identify and Engage Stakeholders

Start projects with the stakeholders in mind, establish effective relationships and communication with them and maintain a focus on what the project means for them individually (or as a group).

You will spend a lot of time communicating with stakeholders, so good relationships are essential. In this topic, we explore how to identify and engage project stakeholders. In Lesson 4 of this course, we return to the topic of stakeholder management to discuss how to best communicate and collaborate with stakeholders on the project.



### Typical Project Stakeholders\*

Can you categorize these stakeholders?

- Which are typically project team members?
- Which are not?
- Which are typically active in project work?

- End users
- Customers
- Employees
- Organization
- Managers

- Sponsors
- Business partners
- Suppliers and contractors
- Government
- Community

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Typical Project Stakeholders

- End users

Customers

Employees

Organization

Managers
- Sponsors

Business partners

Suppliers and contractors

Government

Community

Which are typically team members? Which are not?

Which are typically active in project work?



### Stakeholder and Communications Management

#### Overview

- Stakeholder register
- Stakeholder engagement plan
- Communications management plan
- Stakeholder engagement assessment matrix (SEAM)
- Assessment grids / matrices / models



# Stakeholder and Communications Management

How do you find out who the stakeholders are?

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How do you determine their relationship to the project?

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### Assess Stakeholders

**Data Gathering**

- Questionnaires and surveys
- Brainstorming

**Data Analysis**

- Stakeholder analysis — What are their "stakes" in the project? — i.e., interest, rights, ownership, knowledge, contribution
- Document analysis

**Data Representation**

- Two-dimensional (2D) grids
  - Power/Interest
  - Power/Influence
  - Impact/Influence
- 3D grid — Stakeholder "cube"
- Salience model
- Directions of influence

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Assess Stakeholders

Stakeholder analysis tools/techniques

Data gathering tools/ techniques

Data analysis tools/ techniques

Data representation tools/ techniques



**Create the Stakeholder Register**

- Capture and record important stakeholder information
- Factor in OPAs
- Update if Describe the evolving relationship with stakeholders throughout the project

Contains the information necessary to execute the stakeholder engagement plan

- Refer to stakeholder registers from previous, similar projects for help
- Remember this is a public document, so ensure the information presented is appropriate

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## Create the Stakeholder Register

### Stakeholder register definition

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## Stakeholder Register



	Name	Title	Internal / External	Project Role	Major Requirements	Expectations	Influence / Attitude
1	Eugene Lowe	CEO	Internal	Sponsor	Successful completion	On-time completion, successful partnerships	Champion
2	Oasestown Municipality		External	Government partner (liaison); funding contributor; owner of SLC site	Successful completion of facility and partnership;	Accountability	Supporter
3	Kara Black	Principal, Oases Architects	External	Partner, designer, specialist knowledge (conservation building)	Clear design brief, successful partnership	Fluid funding and communication, design autonomy	Champion
4	Josie Bynoe	Chair, BOD	Internal	Direct strategic local partnerships for Shawpe	Environmental sustainability of project work; "moral rights"	No damage to Oasestown conservation district or environs	Resistor
5	Helen Grey	Lead, business development	Internal	Product owner	High profile tenants, excellent community and conservation credentials	Organizational learning; leadership opportunity	Neutral
6	Hasan Persaud	VP of Business Development	Internal	Portfolio owner	Capacity for ongoing revenue	End-user in Phase 3	Neutral
7	Mandeep Chahal	VP of Finance	Internal	Budget controller	direct contact with funding partners	clear data	Neutral
8	Kei Leung	VP of Marketing	Internal	Marketing expert	elevation of brand	high quality tenants	Supporter
9	Tenants		External	Income source	bespoke spaces	high quality	Neutral
10	Contractors		External	Vendors - building	clear instructions, contract		Neutral
11	Oasestown local residents		External	Neighbors to project	Traffic and noise pollution management	no inconveniences	Resistor
12	Oasestown Community Partnership		External	Community group operating in Oasestown	none	a free space in the SLC	Champion

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*This stakeholder register example is from the Shawpe project case study.*



Find and examine the following in the stakeholder register:

Profile information:

- **Name or organization:** Stakeholders can be individuals or entities
- **Title:** Their functional position in the organization or elsewhere
- **Project Role:** Position on the project
- **Major Requirements:** Which of the project requirements this stakeholder is concerned with.
- **Internal/External:** Is their role inside the company or not?
- **Communication type:** What is their preferred method/frequency of communication?

Assessment information:

- **Expectations:** Take note of their expectations of the project. You will have learned this during an interview, for example.
- **Influence/Attitude:** What degree of impact can this stakeholder have on the project? Use descriptive terms and ensure everyone understands what the terms mean.



### Know Your Stakeholders

Go Beyond Job Titles

Power

Level of authority

Interest

Level of concern about project outcomes

Influence and attitude or impact

- Ability to influence project outcomes or cause changes to planning or execution
- Magnitude of potential contribution or disruption to project

Use a descriptive term — e.g., champion, supporter, neutral, detractor

! Tailor stakeholder assessments to suit project needs. The goal of this exercise is to facilitate your planning of effective communication with the stakeholders!

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# Know Your Stakeholders: Go Beyond Job Titles

Power	
Interest	
Influence (attitude or impact)	



### Stakeholder Mapping

Use two dimensions to map stakeholders:

- Power and interest grid
- Impact and influence grid

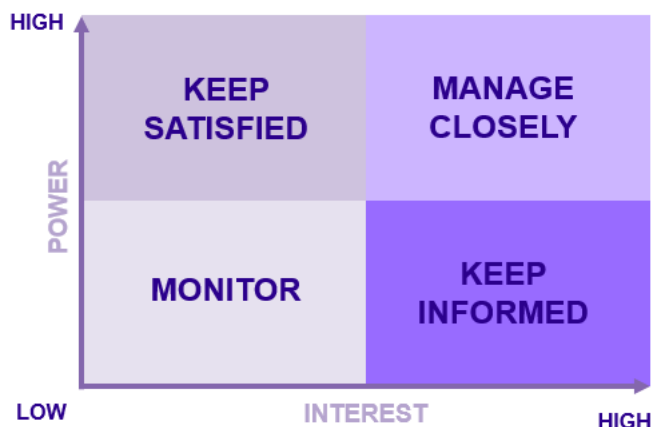
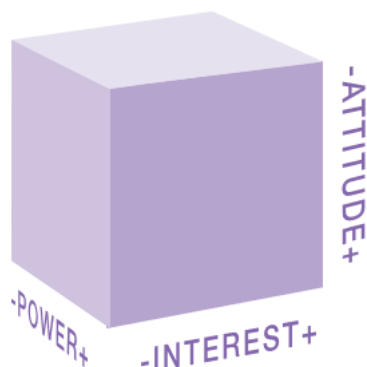
Or use three dimensions – a cube – to refine the analysis further!

**Method:**

- Place each stakeholder on the grid (do not use names)
- Use the same quadrant labels, but change the axis labels

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# Stakeholder Mapping




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Directions of Influence

You should understand the social network of project stakeholders, specifically the direction of their influence on the project.

Upward	Parent organization — senior management (business, financial interests)
Downward	In the project hierarchy — team or specialists
Outward	Have a "stake" in the project — client, end-user, external
Sideward	Friendly or competitive for resources — project manager's peers, other organizational departments

Directions of Influence

	Definition	Example
Upward		
Downward		
Outward		
Sideward		



### Salience Model

Focus on the **product owner** role. Are they familiar, interested and engaged enough with the project to make decisions and move the project forward?

- URGENCY**
  - Level of required attention/detail
  - Time constraints
  - High stakes
- LEGITIMACY**
  - Appropriate involvement
  - Or *proximity*, as applied to team stakeholders, indicating level of involvement with project work
- POWER**
  - Level of authority

## Salience Model

Define and explain the categories used:

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### Stakeholder Perceptions

- Must be holistically understood in customer-centric project management approaches
- Can be damaging to a project, whether they are negative or positive

Why do you think it's important to understand both positive and negative stakeholder perceptions of your project?

## Stakeholder Perceptions

Why do you think it's important to understand both positive and negative stakeholder perceptions of your project?

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### Capture Stakeholder Feedback and Perceptions

- Interpersonal skills
- Active listening
- Emotional intelligence
- Effective communication methods

#### Key stakeholders

- Interview to understand project requirements and vision and communication preferences

#### All stakeholders

- Appropriate, regular project communications

#### Large and public groups

- Questionnaires/surveys
- Facilitated conversations/sessions — online or in person
- Digital media — email campaigns, websites, group chats
- Posters and advertising

## Capture Stakeholder Feedback Perceptions

Leadership tools and techniques include:

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Approaches for key stakeholders

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Approaches for all stakeholders

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Approaches for large and public groups

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Plan to Communicate with Stakeholders



Stakeholder engagement plan identifies required management strategies to effectively engage stakeholders.

Team fulfills strategies via communications described in the communications management plan.

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# Plan to Communicate with Stakeholders

## Stakeholder engagement plan

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## Communications management plan

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Communication Requirements Analysis



- Leads to a clear articulation of the stakeholders' communications needs
- Enables effective choices about communication topics, frequency, models and technologies
- Output is a grid, questionnaire or survey that documents the communication and technology requirements for each stakeholder

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# Communication Requirements Analysis

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**Communication: Methods and Technologies**



Do you use any other communication methods or techniques on your projects?

Are there types your organization does not allow? Why?

**Meetings/verbal**

- Physical (face to face)
- Virtual (videoconferencing)
- Phone call

**Digital/electronic media**

- Websites and social media
- Instant/text messaging via phone or platform
- Email or fax

**Physical**

- Body language and gestures
- White boards

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## Communication Methods and Technologies

Note examples and best uses!

### Meetings/verbal

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### Digital/electronic media

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### Physical

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**Communication Methods**

**PUSH**

**PULL**

**Push** — sender determines:

- Send an email
- Make a phone call

**Pull** — receiver determines:

- Post information on team board
- Store reference documents in electronic repository — e.g., SharePoint

**Interactive**

- Conversation (speaking on the phone, virtual, in-person)
- Messaging
- Workshops/collaboration
- Whiteboarding

Agile teams are colocated whenever possible so that they can be highly collaborative.

## Communications Methods

### Push

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### Pull

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### Interactive communication

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**Communication Challenges / Considerations**

- Urgency of need for information
- Availability and reliability of technology
- Ease of use
- Project environment — e.g., language and formality
- Sensitivity and confidentiality of information
- Communications OPAs — e.g., social media protocols
- Data protection laws/regulations
- Accessibility requirements

## Communications Challenges/Considerations

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**Communication Model!**

Think of an example of a transmission. Depending on the method, what kinds of noise can play a part?

**Cross-Cultural Communication Model**

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## Communication Model

Take notes on the components and dynamics here:

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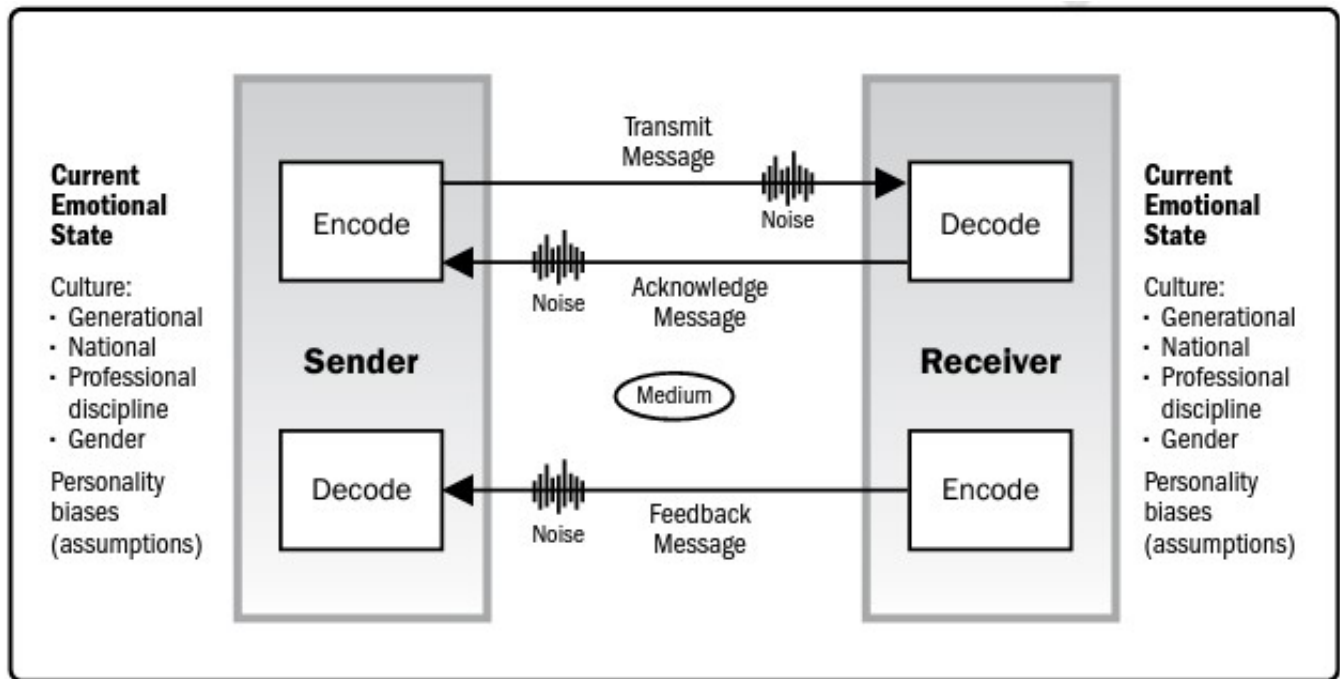
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Communication terms:

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Think of an example of a transmission. Depending on the method, what kinds of noise can play a part?

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## Stakeholder Engagement Strategy

What is your typical strategy for stakeholder engagement?

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**Example Stakeholder Engagement Assessment Matrix (SEAM)**



Tailor labels for stakeholder levels of engagement to your context, team or organization.

Don't use names on the matrix – refer to stakeholders by number.

Stakeholder	Unaware	Resistant	Neutral	Supportive	Leading
1				D	C
2				C	D
3			C	D	
4			C	D	
5		C	D		
6				C	D

C = Current engagement level | D = Desired engagement level

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## Stakeholder Engagement Assessment Matrix (SEAM)

Take note of the categories and designations for the SEAM.

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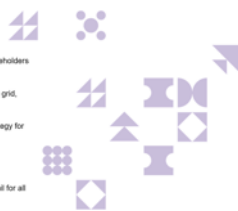


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**ECO Coverage**



**1.9 Collaborate with stakeholders**  
 • Evaluate engagement needs for stakeholders (1.9.1)

**2.4 Engage stakeholders**  
 • Analyze stakeholders (power interest grid, influence, impact) (2.4.1)  
 • Categorize stakeholders (2.4.2)  
 • Develop, execute and validate a strategy for stakeholder engagement (2.4.4)

**2.2 Manage communications**  
 • Analyze communication needs of all stakeholders (2.2.1)  
 • Determine communication methods, channels, frequency and level of detail for all stakeholders (2.2.2)

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## End of Topic 2A

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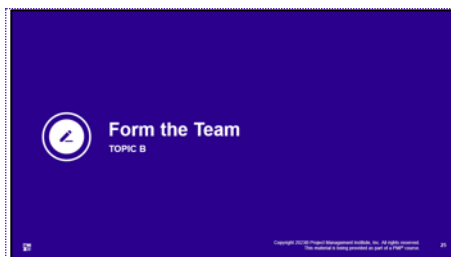
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## TOPIC 2B | FORM THE TEAM

### ECO Coverage

- 1.4 Empower team members and stakeholders
  - Organize around team strengths (1.4.1)
- 2.16 Ensure knowledge transfer for project continuity
  - Discuss project responsibilities within team (2.16.1)
  - Outline expectations for working environment (2.16.2)
- 1.11 Engage and support virtual teams
  - Examine virtual team member needs (e.g., environment, geography, culture, global, etc.) (1.11.1)
  - Investigate alternatives (e.g., communication tools, colocation) for virtual team member engagement (1.11.2)



*Many of the leadership elements of team formation are discussed in Lesson 4, Lead the Team.*

### Topic 2B: Form the Team

Team formation is the next topic we'll explore.

This section provides guidance for the early stages of team formation, including how to prepare and what to expect.



Create a Collaborative Team Culture

(Optional)

How do you think a collaborative team culture can be created in a hybrid approach? Give some examples!

Project manager:

- Builds team agreements, structures and processes that support a culture that enables individuals to work together and benefit from interactions
- Tailors a **resource management plan**
- The team assembles and self-organizes to support project requirements.

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## Create A Collaborative Team Culture

Project manager responsibility:

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How do you think a collaborative team culture can be created in a hybrid approach? Give some examples!

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## Project Team Formation Video



Project team formation is the subject of Dr Bruce Tuckman's ladder model.

What are the five stages?

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*This video and all the others are accessible from your LO CHOICE dashboard!*



Project Team Formation  
Key Concepts



**Self-organizing team:** A cross-functional team in which people fluidly assume leadership as needed to achieve the team's objectives.

**Servant leadership:** The practice of leading the team by focusing on understanding and addressing the needs and development of team members in order to enable the highest possible team performance.

① These concepts can be applied in any kind of project team.

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## Project Team Formation: Key Concepts

### Cross-functional team

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### Self-organizing team

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### Servant leadership

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Project Manager Role in Adaptive Teams



**Leadership and management models:**

- **Centralized:** All team members practice leadership activities and accountability is usually assigned to one individual, such as the project manager or similar role (**team lead**).
- **Distributed:** One project team member (may shift) serves as facilitator to enable communication, collaboration and engagement on accountable tasks.

② If a team is self-organizing, is a project manager needed?

- If not, which of these models works best?
- If yes, what does that role look like?

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## Project Manager Role in Adaptive Teams

Leadership and management roles. \_\_\_\_\_

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Centralized: \_\_\_\_\_

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Distributed: \_\_\_\_\_

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### Hybrid Team Formation Example

Centralized coordination by a project manager or team lead and self-organized project teams for portions of the work





## Hybrid Team Formation

Examples/benefits:

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### Project Team Composition

- Refers to team's makeup and how team members are brought together
- Varies based on organizational culture, location and scope
- Can be full-time or part-time members
- Includes varied knowledge and expertise — i.e., generalists and specialists



## Project Team Composition

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### Project Team Roles

- Project management staff
- Project work staff
- Supporting experts
- Business partners



## Project Team Roles

What are the roles and what does each one do?

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### Identify Project Resource Requirements Guidelines

Provision team members, external contractors and suppliers and physical and intangible assets:

- Ensure relevant skill sets
- Avoid single points of failure — e.g., a single resource has a required skill
- Create **cross-functional teams**
- Use generalizing specialists, or T-shaped people, whenever possible to support other areas of the project
- Ensure appropriate physical resources and other requirements — e.g., equipment and access rights

# Identify Project Resource Requirements: Guidelines

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# Generalizing Specialists

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# T-shaped

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### T-Shaped People and Self-Organizing Teams

- Provide individual value and versatility on project teams
- Lend flexibility to organizations
- Help avoid key resource shortages or work stoppages due to availability
- Train and coach team members to become T-shaped, combining **breadth** and **depth** of knowledge

# T-Shaped People and Self-Organizing Teams

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## Diversity, Equity, and Inclusion Standards

Define DE & I:

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What is the DE & I context of your organization or region?

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## Experts and Expert Judgement

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People from other areas of the organization

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## Focus on Team Strengths

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How can a SWOT Analysis help project professionals to focus on team strengths:

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## Team Norms

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## PMI® Code of Ethics and Professional Conduct

Can you remember the four values that drive ethical conduct for the project management profession?

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## Team Charter and Ground Rules

### Team charter

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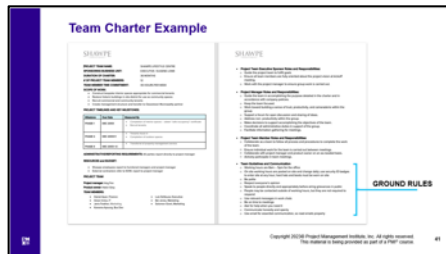
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### Ground rules

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You can enlarge this document for inspection in the Shawpe project case study PowerPoint file (slide 31)

**SHAWPE INDUSTRIES**

**PROJECT TEAM NAME:** SHAWPE LIFESTYLE CENTRE

**SPONSORING BUSINESS UNIT:** EXECUTIVE / EUGENE LOWE

**DURATION OF CHARTER:** 36 MONTHS

**# OF PROJECT TEAM MEMBERS:** 12

**TEAM MEMBER TIME COMMITMENT:** 40 HOURS PER WEEK

**SCOPE OF WORK:**

- Construct bespoke interior spaces appropriate for commercial tenants
- Restore historic buildings in site district for use as community spaces
- Recruit commercial and community tenants
- Create management structure and transfer to Oasestown Municipality partner

**PROJECT TIMELINES AND KEY MILESTONES:**

Milestone	Due Date	Measured By
PHASE 1	DEC 20XX	<ul style="list-style-type: none"> <li>Completion of interior spaces – obtain "safe occupancy" certificate</li> <li>Recruit tenants</li> </ul>
PHASE 2	DEC 20XX+1	<ul style="list-style-type: none"> <li>Tenants move in</li> <li>Completion of outdoor spaces</li> </ul>
PHASE 3	DEC 20XX +2	<ul style="list-style-type: none"> <li>Transfer of property management service</li> </ul>

**ADMINISTRATIVE/REPORTING REQUIREMENTS:** All parties report directly to project manager

**RESOURCES and BUDGET:**

- Shawpe employees report to functional managers and project manager
- External contractors refer to SOW, report to project manager

**PROJECT TEAM**

**Project manager:** Ang Fen

**Product owner:** Helen Grey

**TEAM MEMBERS:**

- Daniel Ayan, Finance
- Greer Inness, IT
- Janis Feather, Marketing
- Kareena Ayoung, Bus Dev

- Luis DeSouza, Executive
- Bei Jones, Marketing
- Solomon Grant, Marketing

**SHAWPE INDUSTRIES**

- Project Team Executive Sponsor Roles and Responsibilities:**
  - Guide the project team to fulfill goals
  - Ensure all team members are fully oriented about the project vision at kickoff meeting.
  - Work with the project manager to ensure group work is carried out.
- Project Manager Roles and Responsibilities:**
  - Guide the team in accomplishing the purpose detailed in the charter and in accordance with company policies.
  - Keep the team focused.
  - Work toward building a sense of trust, productivity, and camaraderie within the group.
  - Support a forum for open discussion and sharing of ideas.
  - Address non-productivity within the group.
  - Make decisions to support accomplishing the objectives of the team.
  - Coordinate all administrative duties in support of the group.
  - Facilitate information gathering for meetings.
- Project Team Member Roles and Responsibilities:**
  - Collaborate as a team to follow all process and procedures to complete the work of the team.
  - Ensure individual work for the team is carried out between meetings.
  - Collaborate with project manager and product owner on an as-needed basis.
  - Actively participate in team meetings.
- Team Guidelines and Communication**
  - Working hours are 8am – 5pm for the office
  - On site working hours are posted on site and change daily; use security ID badges to enter site at any hour; hard hats and boots must be worn on site
  - Be polite
  - Respect everyone's opinion
  - Speak to people directly and appropriately before airing grievances in public
  - People may be contacted outside of working hours, but they are not required to respond
  - Use relevant messages in work chats
  - Be on time to meetings
  - Ask for help when you need it
  - Communicate honestly and openly
  - Use email for essential communication, so read emails properly



Team Communication

- Effective communication includes:
  - Verbal
  - Written
  - Behavioral
  - Physical (notice boards)
  - Virtual
- Include communication expectations and details in the team charter
- Organize communications:
  - Facilitate team and stakeholder collaboration
  - Manage expectations
  - Check regularly to make sure it's working!
  - Plan and use retrospectives to discuss communications improvements

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## Team Communication

Effective communication includes:

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Organize communications:

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Collocated, Virtual or Both?

What kind of team are you on?

Virtual Team\*

- "Normal" in most workplaces
- Create opportunities for the organization:
  - Better skills at lower costs
  - Avoids relocation expenses
  - Work/life balance
- Rely on communication technology
- May have bonding challenges

Collocated Team\*

- Interaction is easy
- Better bonding is facilitated
- Use of physical tools, collaboration and boards possible

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## Collocated, Virtual or Both?

Advantages of colocated teams:

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Advantages of virtual teams:

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## Virtual Team Challenges

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## Running Virtual Teams

What are your tips for creating a positive virtual team experience?

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## Virtual Team Communication Technology

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### Address Virtual Team Member Needs

- Facilitate and ensure collaboration as a priority  
Address the basic needs of a virtual team, including:
- Cohesion
  - Shared goals
  - Clear purpose
  - Clarity on roles and expectations



## Address Virtual Team Member Needs

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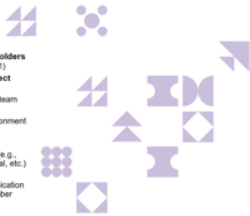
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### ECO Coverage

- 1.4 Empower team members and stakeholders
  - Organize around team strengths (1.4.1)
- 2.16 Ensure knowledge transfer for project continuity
  - Discuss project responsibilities within team (2.16.1)
  - Outline expectations for working environment (2.16.2)
- 1.11 Engage and support virtual teams
  - Examine virtual team member needs (e.g., environment, geography, culture, global, etc.) (1.11.1)
  - Investigate alternatives (e.g., communication tools, collocation) for virtual team member engagement (1.11.2)



## End of Topic 2B

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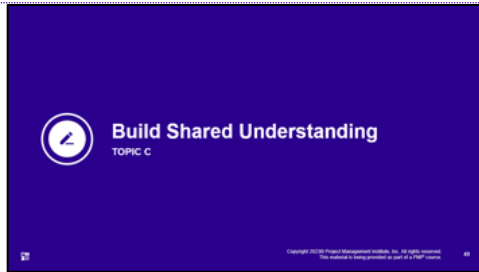


## TOPIC 2C | BUILD SHARED UNDERSTANDING

### ECO Coverage

- 1.2 Lead a team
  - Set a clear vision and mission (1.2.1)
  
- 1.8 Negotiate project agreements
  - Analyze the bounds of the negotiation for agreement (1.8.1)
  - Assess priorities and determine ultimate objective(s) (1.8.2)
  - Participate in agreement negotiations (1.8.4)
  - Determine a negotiation strategy (1.8.5)
  
- 1.10 Build shared understanding
  - Survey all necessary parties to reach consensus (1.10.2)
  - Support outcome of parties' agreement (1.10.3)
  
- 1.12 Define team ground rules
  - Communicate organizational principles with team and external stakeholders (1.12.1)
  - Establish an environment that fosters adherence to ground rules (1.12.2)





## Topic 2C: Build Shared Understanding

One of the first goals in starting a project is to ensure that all team members and stakeholders have a common understanding of the objectives of the project, as well as an understanding of any agreements, such as contracts or statements of work that initiated the project.

You must also enable the team to understand the importance of the project and the alignment to the organization's strategic objectives.

Again, the focus is on creating that collaborative team environment, but the stakes are highest in this period. As much as possible, you need to make sure everyone is aligned before work starts.

If you get the team in a good place from the start, then keeping them motivated and inspired to do their best work will be easier in the weeks ahead!



## Seek Consensus for the Project Among the Team and Stakeholders

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Building a Shared Understanding Guidelines

- Share the project agreements (vision statement and project charter) with stakeholders and the team
- Agree or negotiate to reach agreement and "buy-in":
  - Project agreements — stakeholders
  - Roles and responsibilities, priorities and assignments — team
- Uphold the agreements throughout the project

Use open and reliable communication methods and your leadership "power skills"

## Building a Shared Understanding: Guidelines

Stewardship:

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Share project agreements and negotiate to ensure buy-in:

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Uphold project agreements:

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Project Vision Statement

- Created by project sponsor or executive
- Includes a clear vision of the desired objectives and alignment with the organization's strategic goals
- Refer to it throughout the project to maintain alignment

## Project Vision Statement

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## Holistic Understanding of the Project

### Negotiation Goals

#### First, find out...

- The boundaries of negotiation for the project agreement
  - What, if anything, is eligible for discussion or troubleshooting
- The desired objectives of the project

#### Then:

- Apply critical thinking and business acumen
- Discover how the project fits in the organizational landscape and business objectives

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## Holistic Understanding of the Project: Negotiation Goals

First, find out:

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Then

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## How to Create a Holistic Understanding of the Project

- **Ask stakeholders** to elaborate and clarify their vision or inputs, including asking the sponsor to clarify the vision statement
- Existing **agreements** may contain initial intentions for, or describe, a project:
  - Contracts with external parties
  - Memorandums of understanding (MOUs)
  - Service-level agreements (SLAs)
  - Letters of agreement or intent
  - Verbal agreements
  - Communication (especially emails) between key stakeholders
  - Statements of work (SOW)

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## How to Create a Holistic Understanding of the Project

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*For further optional reading or reference in business analysis, PMI offers:*

- [The PMI Guide to Business Analysis](#) (2017)
- [Business Analysis for Practitioners: A Practice Guide](#) (2015)

*Login and access requires PMI membership*



Negotiate and Agree on Project Success Criteria

- Interview stakeholders
- Gather expert judgment on technical success criteria
- Check:
  - Organizational (program, operations) key performance indicators (KPIs)
  - Lessons learned and historical data
  - Quality policy
  - User acceptance testing (UAT) requirements
- Reporting and verification criteria for objectives
- Identification of deliverable and objective acceptance criteria for each
- A definition of done (DoD) may be specified for the project, in addition to iteration outputs




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## Negotiate and Agree on Project Success Criteria

### Steps:

- Interview stakeholders
- Gather expert judgment on success criteria
- Check:
  - Key performance indicators (KPIs)
  - Lessons learned and historical data
  - Quality policy
  - User acceptance testing (UAT) requirements

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### Acceptance criteria and definition of done (DoD):

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Help Everyone Understand the Vision

Guidelines

- Use interpersonal and leadership "power skills" and open communication channels with stakeholders and team members
- Get creative with agile methods!
- A product box exercise to internalize the vision from the customer's point of view and emphasize product/project value
  - **Example:** Here is why Oasestown residents will choose to spend their time and money at SLC (followed by explanation of what it offers to customers)
- The XP metaphor technique explains a complex idea in simple, familiar terms, using common language and vocabulary
  - **Example:** SLC is the living room of Oasestown!

# Help Everyone Understand the Vision: Guidelines

## Guidelines

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## Product Box Exercise

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## Extreme Programming (XP) metaphor

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Got Agreement on the Project Agreements?

There is no single way to create a project charter, but every project needs to have one!

# Got Agreement on the Project Agreements?

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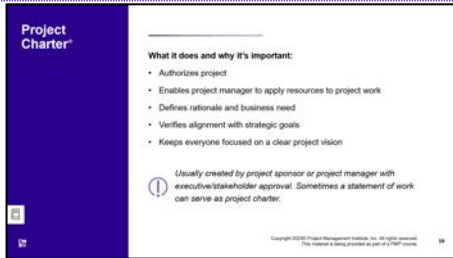


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## Project Charter

### Project charter definition

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### What it does and why it's important

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## Project Charter: Contents

### What's included:

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*The Shawpe project team builds this project charter – see slides 34-35 of the Shawpe project case study! This example project charter is a concise, one-page document, but charters can vary in length and breadth.*





## PROJECT CHARTER

PROJECT NAME		PROJECT MANAGER	PROJECT SPONSOR
Shawpe Lifestyle Center (SLC)		Ang Fen	Eugene Lowe
EMAIL	PHONE	ORGANIZATIONAL UNIT	
ang.fen@shawpe.com	000.000.0000	Executive	
ESTIMATED COSTS	EXPECTED SAVINGS	EXPECTED START DATE	EXPECTED COMPLETION
\$10 Million	\$0	Jan 20XX	Dec 20XX+2

## PROJECT OVERVIEW

PROBLEM OR ISSUE	Rehabilitate commercial property in downtown Oasestown
PURPOSE OF PROJECT	Establish a profitable commercial development and community partnership in Oasestown
BUSINESS CASE	Attached. Approved by E. Lowe and BOD at Oct 20XX meeting.
GOALS / METRICS	Building code and other local government compliance with historic district construction
EXPECTED DELIVERABLES	"Rehabilitate 128,000 sq metre indoor/outdoor space to meet municipality standards and compliance with National Heritage & Conservation Board (NHC) standards / Property management entity established with Oasestown partner / Secure 14-18 highly reputable commercial tenants"
RISK - CONSTRAINTS, ASSUMPTIONS	1. Site in historical conservation zone 2. New vendors for specialist glasswork and masonry 3. Physical retail market stability 4. Resistant key stakeholder 5. Phase 3 financing dependent on success of Phases 1 and 2

## PROJECT SCOPE

WITHIN SCOPE	1. Manage construction contractors and site development; 2. conduct marketing and advertising to secure 14-18 high-quality tenants to anchor commercial space; 3. Work with community partners to establish socially beneficial community spaces and programs 4. Manage project budget (funded by external grant) within compliance
OUTSIDE OF SCOPE	1. architectural work - interior and exterior - Oases Architects 2. building work - XYZ General Contractors, ZYX specialist contractors 3. External grant fund management

## TENTATIVE SCHEDULE

KEY MILESTONE		START	FINISH
Form Project Team / Preliminary Review / Scope		00/00/0000	00/00/0000
Finalize Project Plan / Charter / Kick Off		00/00/0000	00/00/0000
Phase 1	Design and build interior	00/00/0000	00/00/0000
	Create contract with community groups	00/00/0000	00/00/0000
	Recruit 14-18 tenants	00/00/0000	00/00/0000
Phase 2	Design and build outdoor spaces	00/00/0000	00/00/0000
	Install community programs	00/00/0000	00/00/0000
	Secure \$5M revenue in annual commercial rents	00/00/0000	00/00/0000
Phase 3	Finalize all construction	00/00/0000	00/00/0000
	Train SLC property management staff	00/00/0000	00/00/0000



## Kickoff Meeting

### Purpose

- Establishes project context
- Assists in team formation
- Aligns team and stakeholders with project vision

### Organizational/Public

- Announce project initiation
- Share understanding of high-level vision, purpose and value
- Identify sponsor, key stakeholders and project manager
- Include high-level items from the project charter

### Internal/Team – held after agreements are finalized

- Give project charter overview
- Clarify team member roles and responsibilities (may include the initial team charter)
- Present results of planning efforts
- Initiate product backlog
- Present product roadmap

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## Kickoff Meeting

### Purpose:

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### Organizational/public:

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### Internal/team:

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### Any specific differences according to life cycle?

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## ECO Coverage

### 1.2 Lead a team

- Set a clear vision and mission (1.2.1)

### 1.8 Negotiate project agreements

- Analyze the bounds of the negotiation for agreement (1.8.1)
- Assess priorities and determine ultimate objective(s) (1.8.2)
- Participate in agreement negotiations (1.8.4)
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### 1.10 Build shared understanding

- Survey all necessary parties to reach consensus (1.10.2)
- Support outcome of parties' agreement (1.10.3)

### 1.12 Define team ground rules

- Communicate organizational principles with team and external stakeholders (1.12.1)
- Establish an environment that fosters adherence to ground rules (1.12.2)

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## End of Topic 2C

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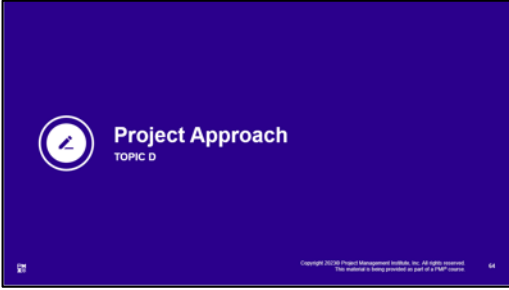


## TOPIC 2D | PROJECT APPROACH

### ECO Coverage

#### 2.13 Determine appropriate project methodology/ methods and practices

- Assess project needs, complexity, and magnitude (2.13.1)
- Recommend project execution strategy (e.g., contracting, financing) (2.13.2)
- Recommend a project methodology/approach (i.e., predictive, adaptive, hybrid) (2.13.3)

 A blue rectangular slide with a white circular icon containing a pencil and eraser. To the right of the icon, the text "Project Approach" is written in white, with "TOPIC D" in smaller white text below it. At the bottom left, there is a small white logo. At the bottom right, there is small white text: "Copyright 2023 Project Management Institute, Inc. All rights reserved. This material is being presented as part of a PMI® course." and a small white number "64".	<h3>Topic 2D: Project Approach</h3> <p>Now that you have a clearer idea of the purpose, objective, stakeholders, and team resources required for the project, you and your team will be thinking about how you can best approach the work.</p>
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### First, Understand How and Why Approaches Differ

- Changing perceptions of value — e.g., sustainability, customer-centricity
- Dynamic and perpetual global change
- Increasing complexity and risk
- Need to innovate and be dynamic

Which project management frameworks do you use?  
Do you have a preference?

## First, Understand How and Why Approaches Differ

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Which project management frameworks do you use?  
Do you or your organization have a preference?

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**Tailored Development Approaches**

- Support **dynamic work environments**
- Discover **value delivery requirements** early
- Put stakeholders and the team in close collaboration

Advantages:

- Provide better feature or capability assessment — continuous improvement and quality
- Improve organizational tolerance for change

 **Servant leaders influence projects and encourage the organization to think differently.**

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# Tailored Development Approaches

Role of servant leadership in tailoring a development approach:

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**Project Management Development Approaches**

Characteristics	Certainty About Requirements	Change and Risk
 <ul style="list-style-type: none"> <li>Plan-driven</li> <li>Linear sequence of activities, in phases</li> <li>Phase completion governed by phase gates</li> </ul>	High, from beginning	<ul style="list-style-type: none"> <li>Change possible, but controlled</li> <li>Risks carefully studied and managed</li> </ul>
 <ul style="list-style-type: none"> <li>Change-driven</li> <li>Iterative or incremental</li> <li>Timeboxed cadence (iterations/sprints) or continuous flow</li> </ul>	Unclear or customer-driven, so needs further discovery	<ul style="list-style-type: none"> <li>Built on assumption of high degree of change</li> <li>High tolerance of risk with guardrails for risk management</li> </ul>
 <p>Tailored development approach, combining these elements</p>		

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# Project Management Development Approaches

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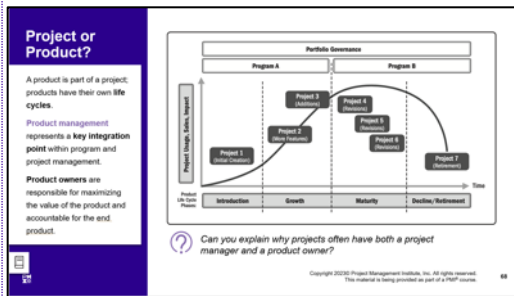


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## Project or Product?

Product management definition:

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Product / project relationship:

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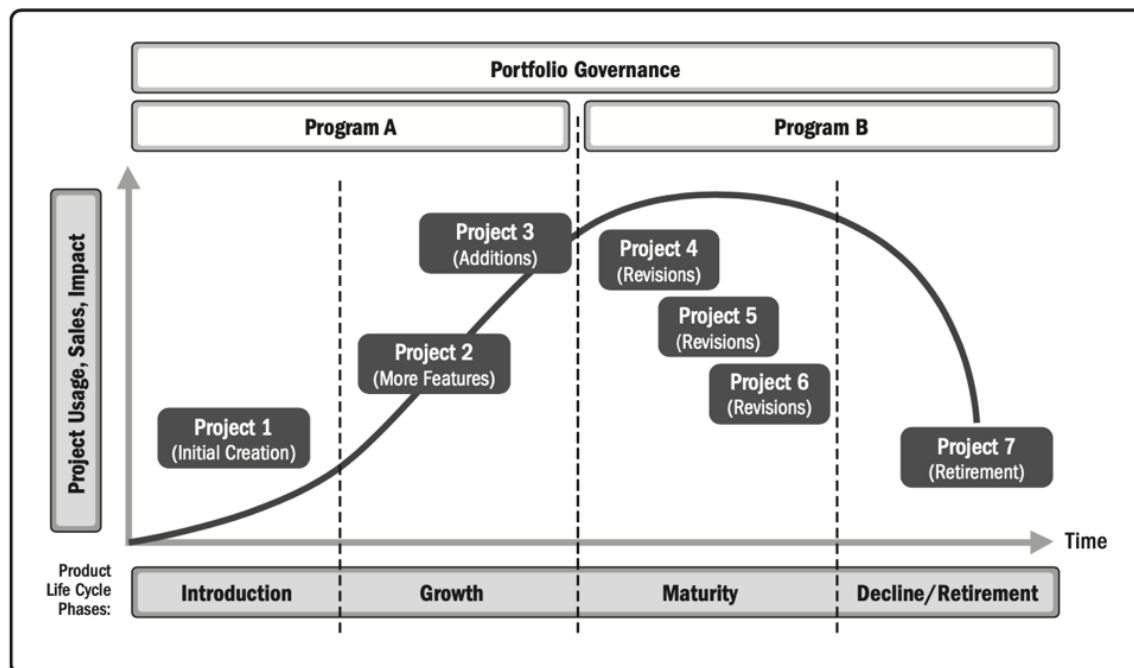
Explain why projects often have both a project manager and a product owner:

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Figure 2-4. Sample Product Life Cycle / The Standard for Project Management, PMBOK® Guide – Seventh Edition



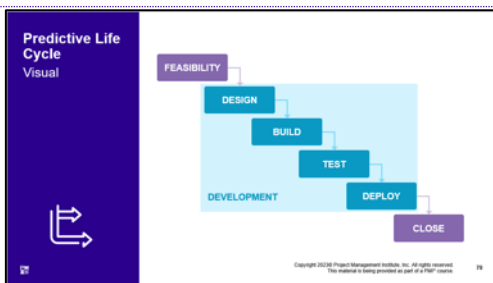




## Cycle and Development Approach

What kind of life cycle is depicted here?

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## Predictive Life Cycle Visual

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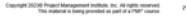
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## 50

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### Cadence

Refers to the timing and frequency of delivery of project deliverables.

- **Single:** One delivery at the end of the project
- **Multiple:** Delivery separated into parts, not necessarily sequentially
- **Periodic:** Like multiple deliveries, but on a fixed schedule — e.g., monthly or bimonthly

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## Cadence

### Definition

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### Single delivery – definition and typical use case

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### Multiple delivery – definition and typical use case

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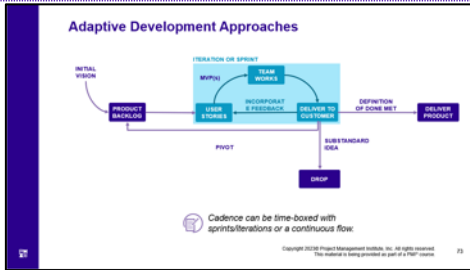
### Periodic delivery – definition and typical use case

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## Adaptive Development Approaches

Can you explain the concepts and steps in this diagram?

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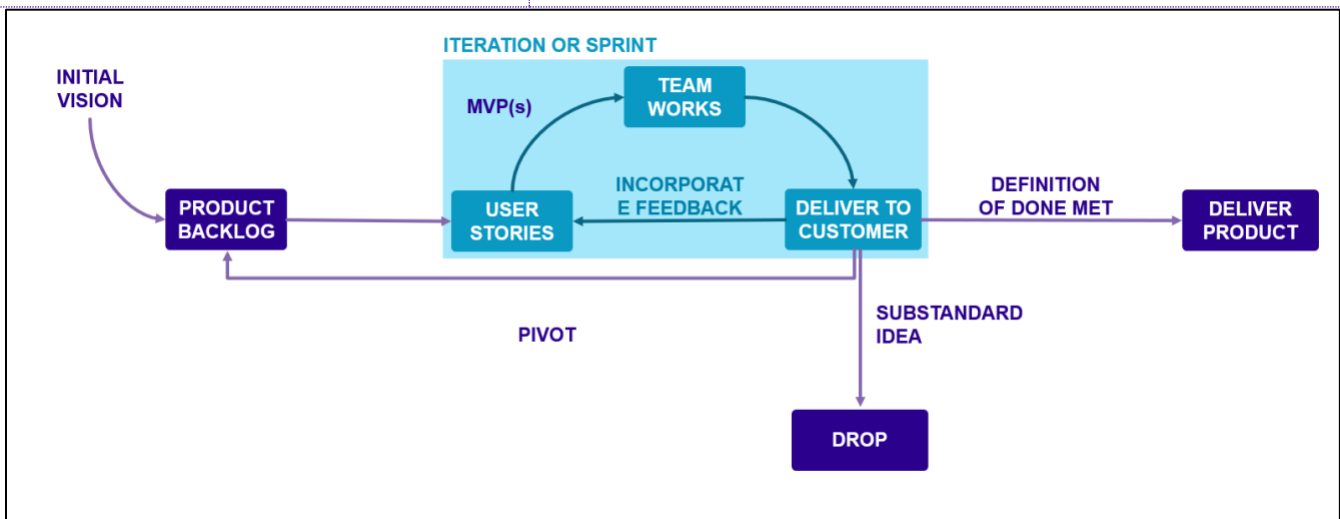
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Development Approach and Life Cycle Terminology Quiz

- Deliverable
- Development approach
- Phases
- Life cycle



Project professionals use a \_\_\_\_\_ or method, which can be predictive, iterative, incremental, adaptive, or hybrid, to create and evolve a \_\_\_\_\_, which is a unique and verifiable product, result, or capability to perform a service.

A project passes through a series of logically related activities, called \_\_\_\_\_ from its start to its completion. This entire process is called a \_\_\_\_\_.

Acceptance of a \_\_\_\_\_ is required to complete a process, phase, or project.

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## Development Approach and Life Cycle Terminology Quiz

Fill in the blanks using the following words:


- Deliverable
- Development approach
- Life cycle
- Phases

Project professionals use a \_\_\_\_\_ or method, which can be predictive, iterative, incremental, adaptive, or hybrid, to create and evolve a \_\_\_\_\_, which is a unique and verifiable product, result, or capability to perform a service.

A project passes through a series of logically related activities, called \_\_\_\_\_ from its start to its completion. This entire process is called a \_\_\_\_\_.

Acceptance of a \_\_\_\_\_ is required to complete a process, phase, or project.



Hybrid Life Cycle and Development Approach


- Accomplished by tailoring
- Combines adaptive and predictive life cycles and/or development approaches
- Useful when requirements are uncertain or risky
- Also useful when deliverables can be modularized, or when deliverables can be developed by different project teams
- Uses iterative and incremental development

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## Hybrid Life Cycle and Development Approach

According to PMI research, most projects are hybrid. But how and why are they created? What are the business needs or drivers? Think about project approach in terms of systems' interactions.

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Hybrid Project Approaches: Examples


- Use agile or iterative practices within a predictive framework
- Use predictive artifacts or processes within an adaptive life cycle
- Business analysis techniques assist with requirements management
- New tools help identify complex elements in projects
- Organizational change management methods prepare for transitioning project outputs into the organization

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## Hybrid Project Approaches: Examples

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What Can Be Tailored?


- Project life cycle
- Development life cycle components
- Way of working (WoW)
- Knowledge management
- Change management
- Project governance
- Benefits management

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## What Can Be Tailored?

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Development Approaches  
Guidance and Probing Questions

- Deliverable type and the **development approach** influence the **number and cadence** for project deliveries.
- The development approach and the desired delivery cadence determine the **project life cycle and its phases**.
- How much unplanned work?
- How does the team prefer to work?
- What cadence suits our work?
- What does the customer want? Is incremental value delivery even important to them?
- What's our schedule? Do we want a steadier, building approach or a faster pace?
- What's our risk appetite/threshold?
- Are sprints helpful?

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## Development Approaches: Guidance and Probing Questions

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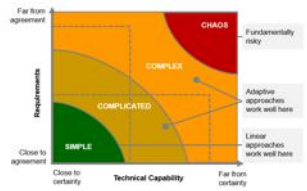
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Assess Complexity: The Stacey Complexity Model



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## Assess Complexity: The Stacey Complexity Model

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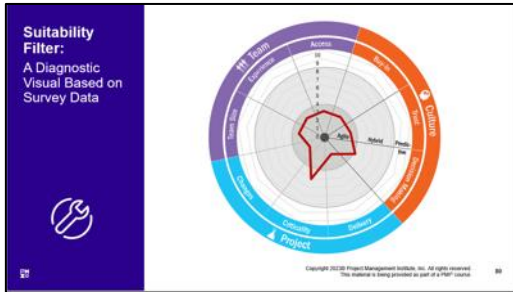
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## Suitability Filter: A Diagnostic Visual Based on Survey Data

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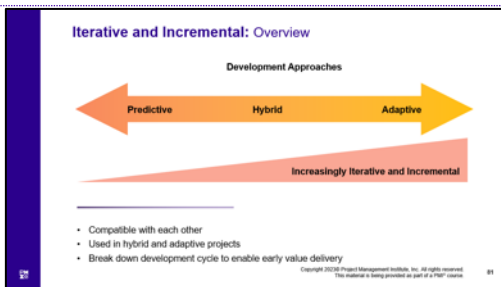
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For more information on how to use this tool: *Agile Practice Guide*, p. 127+



## Iterative and Incremental: Overview

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# Iterate

[it-uh-reet] verb

1. To repeat.

A circular arrow icon, also known as a refresh or reload symbol, consisting of three curved arrows forming a circle. It is positioned on the right side of the slide, against a light blue background.[illegible]



Scrum

- This is a commonly used agile framework that offers suggestions for how work can be organized to maximize value to the end user.
- Scrum is implemented at a product development team level.
- Roles include a **scrum master/senior scrum master** who facilitates ceremonies (meetings); iterations are called **sprints**.

Remember that Agile frameworks focus on influencing the entire organization, including leadership and company culture.

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## Scrum

### Scrum master / senior scrum master

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### Sprints (iterations)

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Scrum Ceremonies Overview

- Sprint planning**
  - Team collaborates with product owner to plan work for current sprint
  - Scrum master/senior scrum master facilitates
- Daily scrum**
  - Short, daily meeting of team only
  - Team members describe work, ask for help, consider progress toward goal
  - Not a status meeting
- Sprint review – can include Demo**
  - Held at end of sprint
  - Team, product owner and stakeholders attend, or customers review progress and give feedback to adapt product
- Sprint retrospective**
  - Team identifies improvements to performance and collaboration

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## Scrum Ceremonies: Overview

### Sprint planning:

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### Daily scrum:

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Scrum Ceremonies Overview


- Sprint planning**
  - Team collaborates with product owner to plan work for current sprint
  - Scrum master/senior scrum master facilitates
- Daily scrum**
  - Short, daily meeting of team only
  - Team members describe work, ask for help, consider progress toward goal
  - Not a status meeting
- Sprint review – can include Demo**
  - Held at end of sprint
  - Team, product owner and stakeholders attend, or customers review progress and give feedback to adapt product
- Sprint retrospective**
  - Team identifies improvements to performance and collaboration

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## Scrum Ceremonies (continued)

### Sprint review—can include demo

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### Sprint retrospective

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Agile Ceremonies


We've discussed the ceremonies over the last few slides. Do you use them in your organization? How effective do they seem to be to you?

- **Product strategy meeting** – product owner shares product vision
- **Daily standup or standup**
  - Team status meeting
  - 5 to 15 minutes, timeboxed
  - Not necessarily daily
- **Backlog refinement**
  - Product owner prioritizes items on backlog
- **Project retrospective**
  - Held at the end of a project to review work and processes
  - Like lessons learned

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## Agile Ceremonies

Do you use these agile ceremonies in your organization?

How effective do they seem to be to you?

Product strategy meeting

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Daily meeting or standup:

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Backlog refinement

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Project retrospective

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ECO Coverage

2.13 Determine appropriate project methodology/ methods and practices

- Assess project needs, complexity and magnitude (2.13.1)
- Recommend project execution strategy (e.g., contracting, financing) (2.13.2)
- Recommend a project methodology/approach (i.e., predictive, adaptive, hybrid) (2.13.3)

## End of Topic 2D

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End of Lesson 2

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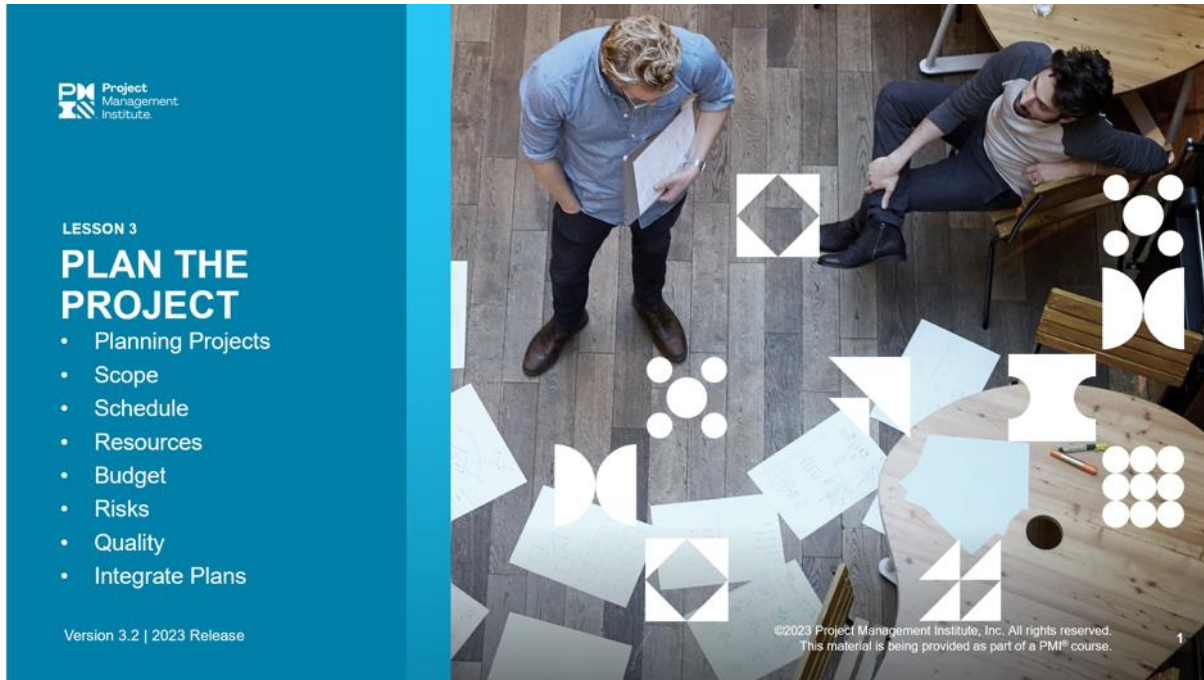
## End of Lesson 2

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## Lesson 3: Plan the Project

### Description

Planning includes all aspects of a project, including scope, schedule, budget, quality, risk, and finally, putting it all together.



## Learning Objectives

- Explain the importance of a project management plan.
- Provide an overview of scope planning in both predictive and adaptive projects.
- Provide an overview of schedule planning in both predictive and adaptive projects.
- Discuss resource planning for a project, including human and physical resources and the role of procurement.
- Determine the budgeting structure/method for a project
- Explain the importance of tailoring a budget.
- Identify strategies for dealing with risks and risk planning.
- Assemble a toolkit of possible responses to risks.
- Define quality and how it relates to the outcomes and deliveries for a project.
- Discuss the importance of integrating project management plans and tailoring a change management process.



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## Topics

- A. Planning projects
- B. Scope
- C. Schedule
- D. Resources
- E. Plan budget
- F. Risks
- G. Quality
- H. Integrate plans




# Lesson 3 Notes

## TOPIC 3A | PLANNING PROJECTS

### Topic Coverage

- Differentiation of planning in predictive and adaptive approaches

 <p>The slide is blue with a white circular icon containing a pencil. Text on the slide includes "Planning Projects" and "TOPIC A". Small text at the bottom reads: "©2023 Project Management Institute, Inc. All rights reserved. This material is being provided as part of a PMI course."</p>	<h3>Topic 3A: Planning Projects</h3> <p>In this lesson, we look at how project teams can plan for successful outcomes using PMI best practices. Most of the content in this section refers to the “Process” domain in the exam content outline, or the Way of Working side of the Talent Triangle®, but we will explore relevant leadership “power skills” and business environment factors as well.</p>
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### Planning Starts with a Project Management Plan

The document that describes how the project will be executed, monitored and controlled, and closed.

It includes:

- Subsidiary plans
- Baselines
- Additional components

Enables project managers to ....

- Execute
- Monitor
- Control
- Close

Establishes guardrails to maintain controls, so ....

- Teams can tailor their way of working and act quickly and flexibly!

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## SUBSIDIARY MANAGEMENT PLANS

- Scope management plan
- Requirements management plan
- Schedule management plan
- Cost management plan
- Quality management plan
- Resource management plan
- Communications management plan
- Risk management plan
- Procurement management plan
- Stakeholder engagement plan

## BASELINES

- Scope baseline
- Schedule baseline
- Cost baseline

## ADDITIONAL COMPONENTS

- Change management plan
- Configuration management plan
- Performance measurement baseline
- Project life cycle
- Development approach
- Management reviews

# Planning Starts with a Project Management Plan

## Subsidiary plans

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## Baselines

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## Additional components

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## Enables project managers to:

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Project Documents

Documentation and content created by the team to plan and manage the project effectively

Some documents are project **artifacts**, which need to be maintained and then archived at the end of the project.

 They are not components of the project management plan.

\*See definition tab for list

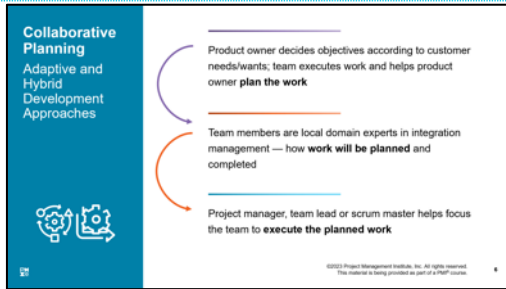
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# Project Documents

## Definition and description:

## Typical project documents include:





## Collaborative Planning: Adaptive and Hybrid Development Approaches

Describe the typical flow or setup in adaptive/hybrid planning approaches:

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Planning Across Life Cycles			
	Predictive 	Hybrid 	Adaptive 
Requirements specification	Defined in specific terms before development	Elaborated periodically during delivery	Elaborated frequently during delivery
Outcome(s)	Delivered at the end of the project	Can be divided into pieces (incremental)	Delivered after each iteration according to stakeholder-desired value
Change	Constrained as much as possible	Incorporated at periodic intervals	Incorporated in real time during delivery
Stakeholder involvement	At specific milestones	Regularly	Continuously
Risk and cost controls	Through detailed planning of mostly known consideration	Through progressive elaboration of plans	Done as requirements and constraints emerge

## Planning Across Life Cycles

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	Predictive	Hybrid	Adaptive
Requirements specification			
Outcome(s)			
Change			
Stakeholder Involvement			
Risk and cost controls			

Topic Coverage



Differentiation of planning in predictive and adaptive approaches

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## End of Topic 2A

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## TOPIC 3B | SCOPE

### ECO Coverage

- 2.1 Execute project with the urgency required to deliver business value
  - Support the team to subdivide Project tasks as necessary to find the minimum viable product (2.1.3)
- 2.8 Plan and manage scope
  - Predictive vs Adaptive approach for scope
  - Determine and prioritize requirements (2.8.1)
  - Break down scope (e.g., WBS, backlog) (2.8.2)
- 2.17 Plan and manage project/phase closure or transitions
  - Determine criteria to successfully close the project or phase (2.17.1)
  - Differentiation of planning in predictive and adaptive approaches



### Topic 2B: Scope

Now that we have an overview of how project planning happens across project life cycles, we're ready to get into the business of planning! Typically, we start with scope.





*The examples on this slide are from the scenario in the optional Shawpe (SLC) case study exercise (self-study) included with this course.*

## Scope

### Project scope

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### Product scope

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### What does fixed or flexible mean?

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## Scope

- **Project scope** or **product scope**?
- Is it **fixed** or **flexible**?



SHAWPE  
INDUSTRIES  
LIFESTYLE CENTRE

*Let's use the Shawpe Lifestyle Centre project—the independent case study part of this course—to understand these terms better.*

PROJECT SCOPE

The **project scope** of the Shawpe Lifestyle Centre is to complete a construction project and engage a sales and marketing project to fill it with tenants over time.

PRODUCT SCOPE

The **product scope** is the completed revitalization of Oasestown with bespoke (customized) spaces for commercial and community tenants.

FIXED

The scope of the construction project is **fixed**. It's based on finalized blueprints and building compliance requirements with little room for change. . . and a specific timeline!

FLEXIBLE

The scope of the sales and marketing project is **flexible**. It depends on the timely completion of the construction project, market forces, and the customer's desired design. The team will derive as much value as possible, as early as possible, by working iteratively and incrementally.

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Enlarged version with click-outs

### Adaptability and Resilience in Planning

#### Rolling Wave Planning

- A form of **progressive elaboration** applied to work packages, planning packages and release planning
- Used in adaptive or predictive approaches



## Adaptability and Resilience in Planning

### Rolling wave planning

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### Progressive elaboration

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This video provides a closer look at MVPs and MBIs.

## MVP or MBI? Planning for Work Incrementally

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## Product Roadmap

### Product roadmap

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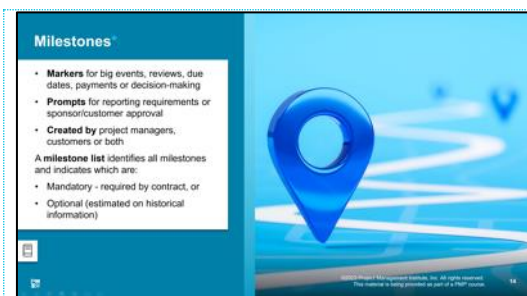
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## Milestones

### Definition and description

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A milestone list identifies all milestones and indicates which are:

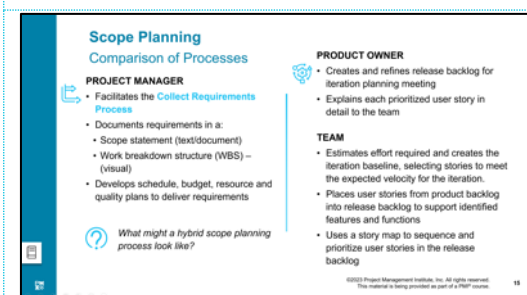
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## Scope Planning: Comparison of Processes

Project manager:




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Product owner:



Team:

Collect requirements process

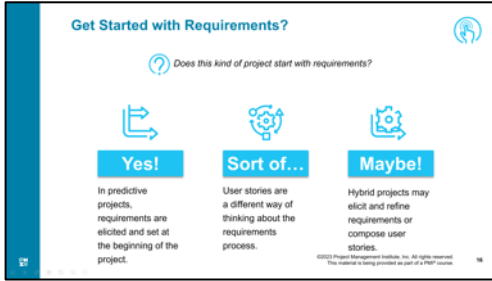
Requirements documentation

User story



What might a hybrid scope planning process involve?





## Get Started with Requirements?

Do all types of projects start with requirements?  
Describe each development approach to requirements or an analogous requirements process – i.e., user stories.

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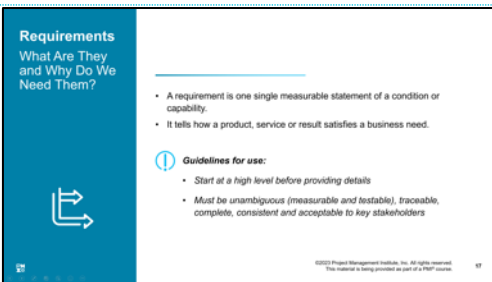
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## Requirements: What Are They and Why Do We Need Them?

Definition and description:

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Guidelines for use:

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Document Requirements

- A simple format — e.g., a document listing all requirements, categorized by stakeholder and priority, OR
- More elaborate — e.g., executive summary, detailed descriptions, attachments
- Requirements traceability matrix

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## Document Requirements

Description of requirements documentation:

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Requirements traceability matrix:

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Requirements Management Plan  
Plan, Track and Report on Requirements Activities

- Configuration management activities:
  - Version control rules
  - Impact analysis - tracing, tracking and reporting
- Required authorization levels for change approval
- Prioritization criteria/process
- Product metrics and accompanying rationale
- Traceability structure, including requirement attributes

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## Requirements Management Plan: Plan Track and Report on Requirements Activities

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Type	Describes the...
Project	Actions, processes and conditions the project must meet
Product	Features and characteristics of the product, service or result that will meet the business and stakeholder requirements <ul style="list-style-type: none"> <li>Functional – Product features</li> <li>Nonfunctional – Supplemental environmental conditions/qualities that make the product effective</li> </ul>
Quality	Conditions or criteria needed to validate the successful completion of a project deliverable or fulfillment of other project requirements
Business	Higher-level organizational needs, reasons for the project
Stakeholder	Stakeholder (or stakeholder group) needs – aka “Reporting requirements”
Transition/Readiness	Temporary capabilities needed to transition successfully to the desired future state

## Types of Requirements

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Type	Describes the
Project	
Product	
Quality	
Business	
Stakeholder	
Transition/Readiness	



Collect Requirements Process


- Expert Judgment
- Interpersonal/Team Skills
  - Nominal group technique
- Observation
- Facilitation
- Data Gathering
  - Brainstorming
  - Interviews
  - Focus groups
  - Questionnaires and surveys
  - Benchmarking
- Data Analysis
  - Document analysis
  - Alternatives analysis
  - Product analysis (if deliverable is a product)
- Decision-Making Techniques
  - Voting
  - Multi-criteria decision analysis
- Data Representation
  - Mind mapping
  - Affinity diagram
  - Context or use case diagram
- Prototyping — e.g., storyboarding

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Take notes on these tools and techniques used in the Collect Requirements process.

## Collect Requirements Process

Expert judgment / Interpersonal/team skills

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Data gathering

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Data analysis

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Decision-making techniques

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Data representation

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Prototyping – e.g., storyboarding

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Scope Planning: How to Collect Requirements				
	Interviews	Questionnaires/Surveys	Observations	Facilitated Workshops
Characteristics	<ul style="list-style-type: none"> <li>Identify/define features and functions of deliverables</li> <li>Can be structured, unstructured or asynchronous</li> </ul>	<ul style="list-style-type: none"> <li>Written format</li> <li>Captures information from large groups</li> <li>Yields quantitative data</li> </ul>	<ul style="list-style-type: none"> <li>Physical technique used learn about a specific job role, task or function</li> </ul>	<ul style="list-style-type: none"> <li>Casual/interactive information sharing</li> <li>Monitor/guided</li> <li>Includes stakeholders and SMEs</li> <li>Yields qualitative data</li> </ul>
Advantages	<ul style="list-style-type: none"> <li>Handles sensitive/confidential information</li> <li>Helps identify stakeholder requirements, goals or expectations</li> </ul>	<ul style="list-style-type: none"> <li>Quick turnaround</li> <li>Effective with varied and geographically dispersed respondents</li> <li>Yields quantifiable data for statistical analysis</li> </ul>	<ul style="list-style-type: none"> <li>Team can understand where changes might be beneficial</li> </ul>	<ul style="list-style-type: none"> <li>Pre-selected participants for varied options</li> <li>Small group for focused approach and gathering specific information</li> <li>Team can capture requirements</li> <li>Stakeholders can understand the concerns and requirements of others</li> </ul>
Considerations (potential drawbacks)	<ul style="list-style-type: none"> <li>Captures only a single point of view</li> </ul>	<ul style="list-style-type: none"> <li>Time consuming</li> <li>Answer data quality depends on question quality</li> </ul>	<ul style="list-style-type: none"> <li>Must prequalify stakeholders</li> <li>SMEs and facilitation are essential</li> </ul>	<ul style="list-style-type: none"> <li>Facilitation is essential</li> </ul>

## Scope Planning: How to Collect Requirements

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### Data Gathering



Use **Benchmarks** to generate product requirements

- Requires best practices to make comparisons
- Evaluates and compares an organization's or project's practices with others
- Identifies best practices in order to meet or exceed them

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- Can you remember the other methods for data gathering?
- Why do you think benchmarking is effective in gathering data for scope planning?
- Why would you choose it instead of the other methods?

## Data Gathering

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## Benchmarking

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Use benchmarks to generate product requirements.



Can you remember the other methods for data gathering?

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Why do you think benchmarking is effective in gathering data for scope planning?

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Tool or Technique	Description	Benefits
McGuffey Analysis developed by Don Cligg	Used to reach a common understanding with stakeholders on the importance of each requirement. They indicate: <ul style="list-style-type: none"> <li>• M: Must have</li> <li>• S: Should have</li> <li>• C: Could have</li> <li>• N: Won't have (for now)</li> </ul>	<ul style="list-style-type: none"> <li>• Compares several points of view</li> <li>• Used with timeboxing to focus on the most important requirements</li> <li>• Common in agile software development, Scrum, RUP and UML</li> </ul>
Kano Model (Product management technique) developed by Noriaki Kano	Understand and classify all potential customer requirements or features into four categories of need: <ul style="list-style-type: none"> <li>• Delighters/Exciters</li> <li>• Satisfiers</li> <li>• Dissatisfiers</li> <li>• Indifferent</li> </ul>	<ul style="list-style-type: none"> <li>• Development efforts can then be prioritized by the things that most influence customer satisfaction and loyalty</li> </ul>
Paired Comparison Analysis developed by G. Thurston	Rate and rank alternatives by comparing one against the other	<ul style="list-style-type: none"> <li>• Good for small range of subjective requirements</li> </ul>
100 Points Method (also known as fixed allocation method) developed by Dean Leffingwell and Don Helwig	Vote for importance of requirements in a list; stakeholders distribute 100 points in any way they wish (like "Monopoly money" method)	<ul style="list-style-type: none"> <li>• Good for any size group, even large ones</li> <li>• Gives priority to stakeholder decision-making because they must exercise depth of thought</li> </ul>

## Scope Planning-Requirements Prioritization

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### Represent Data

- **Mind Mapping** – Consolidate ideas created through individual brainstorming sessions into a single map to reflect commonality and differences in understanding and to generate new ideas
- **Affinity Diagram** – Allows large numbers of ideas to be classified for review and analysis

## Represent Data

### Mind mapping

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### Affinity diagram

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### Context Diagrams

## Context Diagram

### Context diagram

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### Prototyping

- **Evaluation and experimentation tool**
- Enables early feedback for further development and to **develop a detailed list of project requirements**
- **Storyboarding** is a type of **prototyping** that uses visuals or images to illustrate a process or represent a project outcome.

## Prototyping

### Storyboarding

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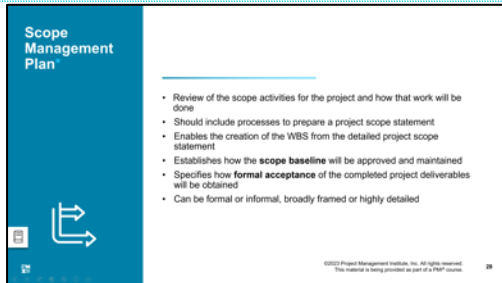
## Prototypes

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## Scope Management Plan

### Scope management plan

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Project Scope Statement

Includes –

- Scope description - project and product
- Acceptance criteria
- Any required deliverables
- Any out-of-scope items needed for clarification
- Constraints and assumptions

! Once it has been approved and baselined, changes are only permitted in accordance with the change management plan.

## Project Scope Statement

Includes:

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Guidelines:

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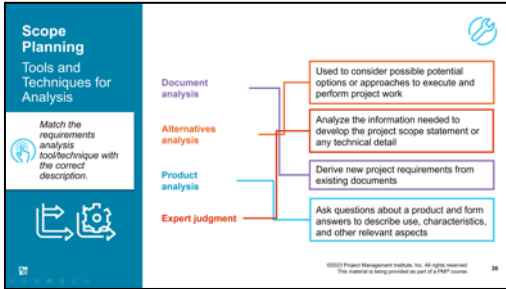
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## Scope Planning: Tools and Techniques for Analysis

Match the requirements analysis tool/technique with the correct description



*This is a matching exercise you should have completed with the class.*

Document analysis

Alternatives analysis

Product analysis

Expert judgment

Used to consider possible potential options or approaches to execute and perform project work

Analyze the information needed to develop the project scope statement or any technical detail

Derive new project requirements from existing documents

Ask questions about a product and form answers to describe use, characteristics, and other relevant aspects



## Product Analysis Methods



### PRODUCT BREAKDOWN

Splits a product and its requirements into components to achieve a clear understanding of work

### SYSTEMS ENGINEERING

Approaches design, integration, and management, and the life cycle of complex systems in a multi-disciplinary way

### SYSTEMS ANALYSIS

Studies a product /service to identify its goals and purposes and create systems/ procedures to achieve them efficiently

### REQUIREMENTS ANALYSIS

Identifies, validates and documents specifications for projects

### VALUE ENGINEERING

Optimizes value in a structured way

### VALUE ANALYSIS

Examines factors affecting product/service cost in a systematic, interdisciplinary way towards success with the lowest cost and required quality and reliability standards

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## Product Analysis Methods

### Product breakdown

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### Systems engineering

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### Systems analysis

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### Requirements analysis

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### Value engineering

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### Value analysis

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### Create the Work Breakdown Structure (WBS)

- Follow the 100% rule
  - Include every aspect – nothing extra, nothing missing
- Include project and product components
- Use hierarchical structure
  - Highest – project
  - Next – deliverables
  - Lowest – work package

## Create the Work Breakdown Structure

### Work breakdown structure (WBS)

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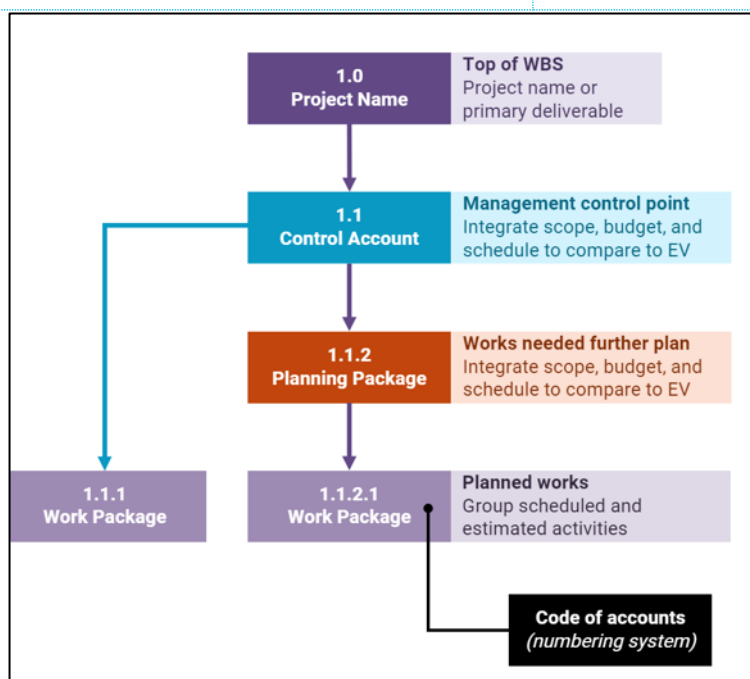
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### Decompose Work in the WBS

Divide and subdivide the project scope and deliverables into smaller, more manageable parts



**Steps:**

1. Identify deliverables and the work/tasks needed to accomplish them
2. Structure and organize the WBS
3. Decompose high-level WBS scope components into low-level components
4. Develop and assign a unique identification code to each component from the **code of accounts**
5. Review the decomposition of work packages and verify that they align with the project requirements

*Tailor the level of decomposition to specific project needs and the level of granularity needed to manage the project effectively.*

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## Decompose the Work in the WBS

Divide and subdivide the project scope and deliverables into smaller, more manageable parts

Steps:

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### WBS Dictionary

Provides detailed deliverable, activity and scheduling information about each component in the WBS



**Decompose work and include:**

- WBS code identifier
- Description of work
- Assumptions and constraints
- Responsible organization
- Schedule **milestones**
- Associated schedule activities
- Resources required to complete the work
- Cost estimations
- Quality requirements
- **Acceptance criteria**
- Technical references
- Agreement information

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## WBS Dictionary

Provides detailed deliverable, activity, and scheduling information about each component in the WBS

Decompose work and include:

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*You can find an example of a WBS dictionary entry in the optional Shawpe (SLC) case study exercise (self-study) included with this course.*



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## Scope Planning in Adaptive Environments

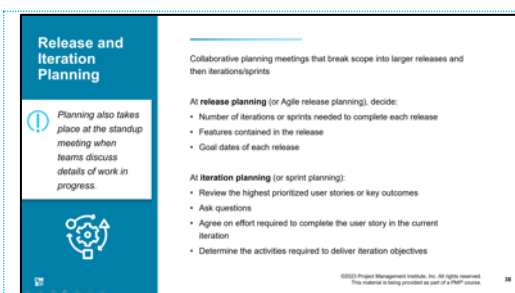
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## Release and Iteration Planning

Planning also takes place at the daily standup meeting when teams discuss details of work in progress.

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Collaborative planning meetings that break scope into larger releases and then iterations/sprints

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At release planning (or Agile release planning), decide:

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At iteration planning (or sprint planning):

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### Backlogs

- Prioritized list of the known scope of work
- Information presented in story form
- Continuously updated by the product owner in collaboration with teams

**Example:**

A product owner creates a **product backlog** and identifies and adds stories in collaboration with the team and stakeholders. Work items describe desired product functionality through user stories.

- The product owner is responsible for prioritizing work according to value.
- The product owner and team collaborate to move work items to the iteration/sprint backlog.

Backlogs may be known by slightly different names on your team or project, but the names are generally descriptive — e.g., requirements backlog, sprint backlog, lean backlog.

## Backlogs

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### User Stories, Story Maps, Roadmaps

- A **story map** organizes **user stories** into functional groups and within a narrative flow ("the big picture") of the **product roadmap**.
- Helpful for discovering, envisioning and prioritizing the product and a way ahead!
- Story map technique developed by Jeff Patton

## User Stories, Story Maps and Roadmaps

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The Story Map technique was developed by Jeff Patton.

### Epics > Features > User Stories

**EPIC**  
a major deliverable

**FEATURE**  
Groups related functionality together to deliver value

**USER STORY**  
Delivers a capability that can be estimated, tracked and managed as a set

**FEATURE**  
Includes activities and efforts such as documentation, bug fixes, testing and quality/defect repairs

## Epics> Features>User Stories

Epic

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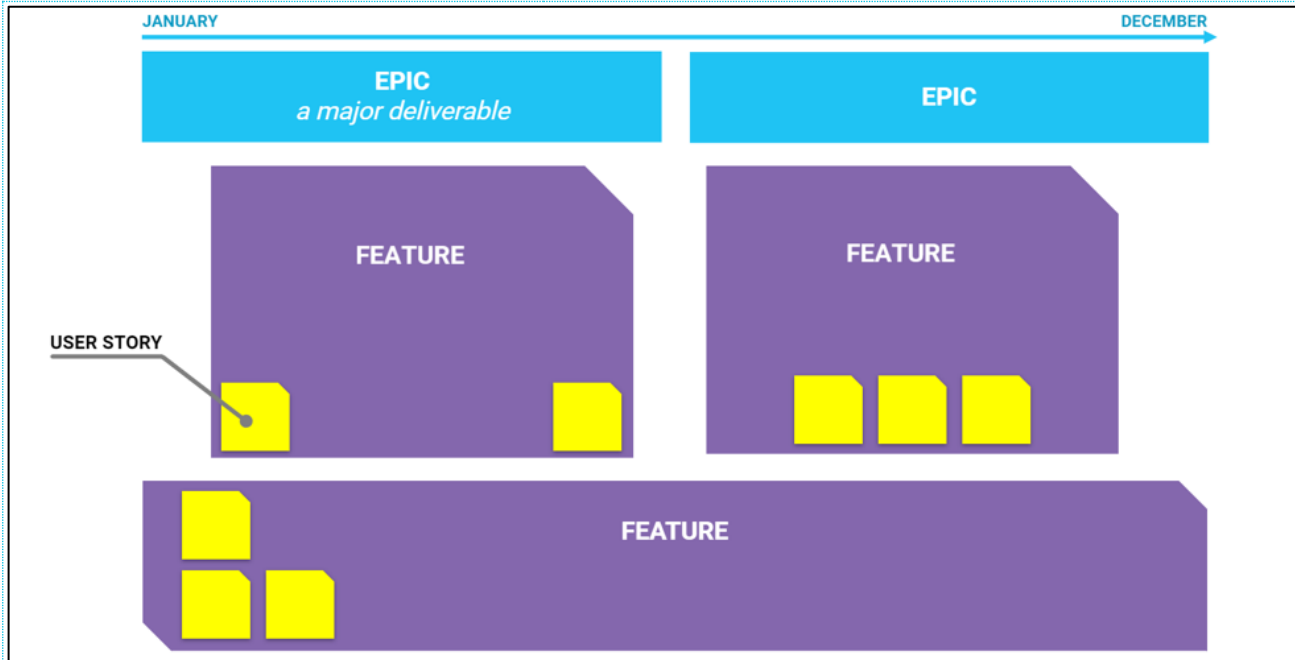


Feature

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*Note the timeline at the top which indicates the varied and typical intervals of each component.*

*Also note the situation of each – for example, epics can include more than one feature and user stories are placed within features*

Prioritize and Refine the Backlog

- Continual refinement done by product owner/customer prior to iteration planning
- Additional refinement can be done jointly by the team and product owner during the sprint/iteration
- Allows reorganization and reprioritization of work to complete higher-priority items that deliver value first
- Split epics into user stories

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## Prioritize and Refine the Backlog

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Ang Fen, project manager  
at Shawpe Industries



## Plan Scope: Quiz

*This is a similar format to the PMP® certification exam, except without names of individuals and companies.*

Which two stakeholders perform project scope planning? (Choose two)

- a) Ang Fen, project manager
- b) Helen Grey, product owner
- c) Eugene Lowe, project sponsor
- d) Project team

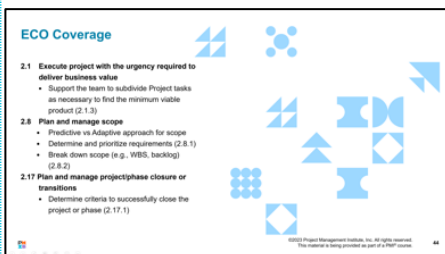
Ang Fen wants to give the executive team an overview of the work ahead at the next strategy meeting.

Which artifact should he show them?

- a) Scope management plan
- b) Product roadmap
- c) Scope statement
- d) Work breakdown structure



You can find more practice questions in the optional Shawpe (SLC) case study exercise (self-study) included with this course.



## End of Topic 2B

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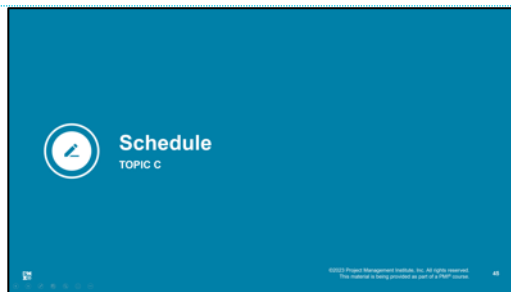


# TOPIC 3C | SCHEDULE

## ECO Coverage

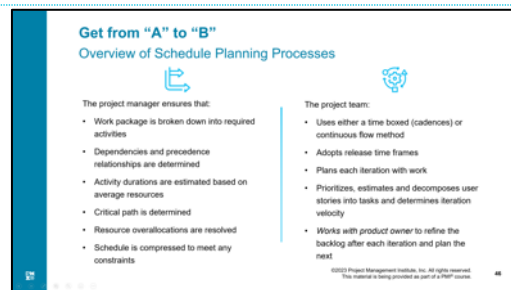
### 2.6 Plan and manage schedule

- Predictive vs adaptive approach for schedule
- Estimate project tasks (milestones, dependencies, story points) (2.6.1)
- Utilize benchmarks and historical data (2.6.2)
- Prepare schedule based on methodology (2.6.3)



### Topic 3C: Schedule

Schedule planning can follow a few different trajectories, depending on the project life cycle in use. Let's start with some general concerns common in all kinds of projects and then explain schedule planning in predictive and then adaptive and hybrid settings.



### Get from “A” to “B”

#### Overview of the schedule planning process



In a predictive approach, the **project manager**:

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In adaptive approaches, the **project team**:

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**Schedule Management Plan**

- Describes how activities will be defined and progressively elaborated
- Identifies scheduling method and scheduling tool used
- Determines schedule format
- Establishes criteria for developing and controlling the schedule
- May be tailored for use in any type of project
- Defines the maintenance process for updating status and records project progress in the schedule model during execution

In hybrid approaches, a schedule management plan can help by placing management controls on the project time line.

## Schedule Management Plan

Schedule management plan

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**Schedule Management Plan Components**

Project schedule model	Methodology/tool for schedule development Includes maintenance planning, including status updates and progress during execution
Accuracy	Acceptable range used to determine realistic activity duration estimates May include risk contingency
Units of measure	Defined for each resource – e.g., staff hours, days and weeks
Organizational procedural links	Use of WBS to ensure consistency with estimates and schedules
Control thresholds	For monitoring schedule performance before taking action – e.g., escalation/reviews Expressed as percentage deviations from the baseline – e.g., percent ahead or behind schedule
Rules	Performance measurement – e.g., earned value management (EVM) rules
Reporting	Frequency and formats for schedule-related reports
Process descriptions	Describes how schedule management processes are documented

Discuss how the schedule management plan can be a beneficial tool in hybrid projects. Who would it benefit?

## Schedule Management Plan Components

Discuss how the schedule management plan can be a beneficial tool in hybrid projects. How and who would it benefit?

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*The schedule management plan includes the components in the table. Take notes there.*



Project schedule model	
Accuracy	
Units of measure	
Organizational procedural links	
Control thresholds	
Rules	
Reporting	
Process descriptions	




### Start with Benchmarks and Historical Data

#### Benchmarking

- Compares current project schedule with a similar product/service schedule
- Provides a good "starting point" for estimation before detailed analysis
- Assesses feasibility in the initial stage of scheduling

#### Historical data

Learn lessons from completed projects in the organization



## Start with Benchmarks and Historical Data

### Benchmarking

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### Historical data

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### Hybrid Schedules Example Characteristics and Benefits



- Tailored plans to combine consistency and management oversight with flexible scheduling of work
- Better product/deliverable quality with incremental or short-term value delivery and change (improvements, fixes) incorporated at intervals
- Product delivery can be divided into subsets according to a plan (milestone or cadence)


## Hybrid Schedules: Example Characteristics and Benefits

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### Predictive Schedule Planning



The project manager:

- Breaks down a **work package** into the required activities
- Determines **dependencies** and **precedence relationships**
- Estimates the duration of activities based on average resources
- Determines the **critical path**
- Resolves resource overallocations
- Compresses the schedule, if needed, to meet constraints

## Predictive Schedule Planning

### Work package

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Precedence relationship

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Dependency

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Critical path

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### Break Down Project Activities

- Break down project work packages into activities (noun)
- Enter activities into the **activity list** using a verb statement
- Use the **activity list** to develop the project schedule
- Include duration (start and end day) for every activity

Break Down Project Activities

Project activities

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Activity list

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Code of accounts

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Activity Dependency Types		
	Meaning	Action by Project Manager
Mandatory	Contractually required or inherent in the nature of the work	Must schedule it — No way around this sequence
Discretionary	Established because of best practices or a specific sequence is desired	Can be modified as needed, if replaceable with a better sequence, or if schedule compression is required
External	Activities performed outside the project team's work	Limited or no control
Internal	In project work, contingent on inputs	Has control

Activity Dependency Types

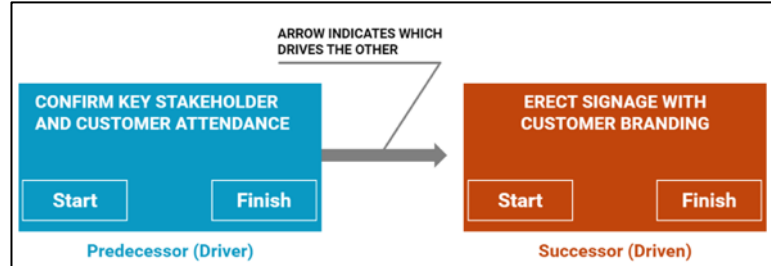
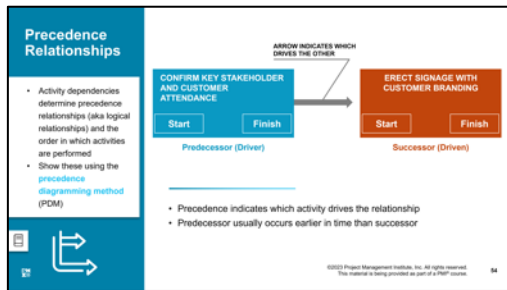
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	Meaning	Action by Project Manager
Mandatory		
Discretionary		
External		
Internal		

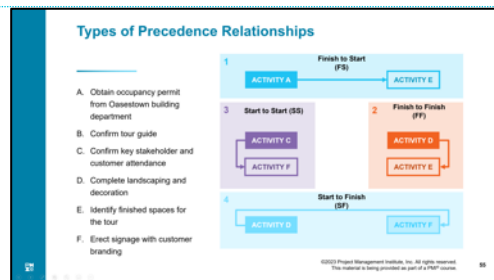




## Precedence Relationships

### Precedence diagramming method

- This graphic is a **finish-to-start relationship** example:
- The team needs to CONFIRM KEY STAKEHOLDER AND CUSTOMER ATTENDANCE and then ERECT SIGNAGE WITH CUSTOMER BRANDING.
- They need to apply the budget and time only to the customers who are committed to attending.



## Types of Precedence Relationships

- Finish to start (FS)
- Finish to finish (FF)
- Start to start (SS)
- Start to finish (SF)

These are explained below, and an example is given of each.



The activities in this schedule network diagram relate to the Shawpe (SLC) project case study. The narrative is given here for those who benefit from learning about the precedence relationships by example.



Activities used in diagram:

- A. Obtain occupancy permit from Oasestown building department
- B. Confirm tour guide
- C. Confirm key stakeholder and customer attendance
- D. Complete landscaping and decoration
- E. Identify finished spaces for the tour
- F. Erect signage with customer branding



Explore this excerpt of a **schedule network diagram**. Note each colored box is labelled with a number.

**1. Finish-to-start (FS):** - A logical relationship in which a successor activity cannot start until a preceding (predecessor) activity has finished.

**For example:** Obtain occupancy permit from Oasestown building department **before** the team can identify finished spaces for the tour. The total time for these two activities is the sum of A + E.

- **Explanation:** The company can only take visitors to spaces that are certified safe for occupancy.

**2. Finish-to-finish (FF):** A logical relationship in which a successor activity cannot finish until a preceding activity (predecessor) has finished.

**For example:** Complete landscaping and decoration must be finished before identifying finished spaces for



the tour. The total time to complete both activities is the sum of D + E, minus any overlap.

- **Explanation:** The team only wants to show finished spaces, so the landscaping and decoration must be completed before the space can be identified as “finished.”

**3. Start-to-start (SS):** A logical relationship in which a successor activity cannot start until a preceding activity (predecessor) has started.

**For example:** The team can’t erect stakeholder-specific signage for the tour before key stakeholder attendance is confirmed. As with the FF example, the total time for activities C and F will vary, depending on when Activity F starts. But in SS, execute, is a longer window of time during which Activity F can begin.

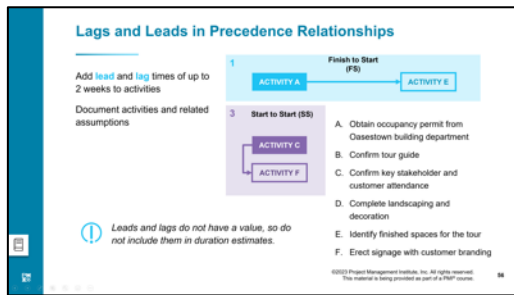
**Explanation:** The marketing team can’t erect stakeholder-specific signage without confirming which stakeholders will attend! But they can start designing the signs and ordering the materials while they wait for confirmation.

**4. Start-to-finish (SF):** A logical relationship in which a successor activity cannot finish until a preceding activity (predecessor) has started.

**For example:** Complete landscaping and decoration can’t end until erect stakeholder-specific signage for tour has started. The total time for two activities in an SF relationship is either D or F, whichever is longer.

- **Explanation:** The groundskeeping team can start landscaping and decorating at any time, but until the signs are erected and the whole site is tidied up, they cannot finish their work.





Lead:

In our example, the team wants to include time in case the agency issuing the occupancy permit is slow. So, they begin efforts to confirm receipt of occupancy permit 2 weeks **before** the team identifies finished spaces for the tour. This would be shown as a finish-to-start with a 2-week lead as shown in Section 1.

Lag:

In our example, the team starts erecting stakeholder-specific signage for the tour 2 weeks after key stakeholder and customer attendance is confirmed. Creating specialty signage takes time and is costly, so the team wants to make sure the designers have time to create something that will please the potential customers.

## Lags and Leads in Precedence Relationships

Lead

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Lag

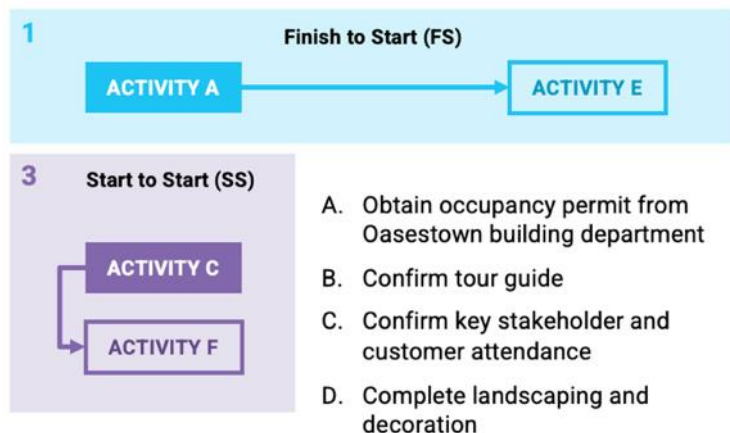
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Guidelines:

- The use of leads and lags should not replace schedule logic.
- Duration estimates do not include any leads or lags.
- Document activities and their related assumptions.





## Activity Duration Estimate Terminology



### Activity Duration Estimate

- The quantitative assessment of the likely number of time periods required to complete an activity

### Elapsed time

- The actual calendar time required for an activity from start to finish

### Effort

- The number of labor units required to complete a scheduled activity or WBS component, often expressed in hours, days, or weeks; contrast with duration

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## Activity Duration Estimate Terminology

### Activity duration estimate

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### Elapsed time

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### Effort

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Estimating Techniques		
<b>Analogous</b>	<ul style="list-style-type: none"> <li>Uses <b>historical data</b> from a similar activity or project to estimate duration (or cost)</li> <li>aka "top-down estimating."</li> </ul>	<ul style="list-style-type: none"> <li>Less costly and time consuming</li> <li>Used when project information is limited</li> <li>May be inaccurate, depending on quality of historical information</li> </ul>
<b>Parametric</b>	<ul style="list-style-type: none"> <li>Uses an <b>algorithm</b> to calculate duration (or cost) based on historical data and project parameters</li> <li>Durations can be <b>quantitatively determined</b> — multiply quantity of work to be performed by the number of labor hours per unit of work</li> </ul>	<ul style="list-style-type: none"> <li>Can produce higher levels of accuracy depending on sophistication of data from model</li> <li>Scalable and linear</li> <li>Does not account for a learning curve — i.e., work gets easier as team becomes more expert</li> <li>Uniform units of work are not typical in projects</li> </ul>
<b>Three-Point</b>	<ul style="list-style-type: none"> <li>Defines an <b>approximate range</b> of an activity's duration, using <b>most likely, optimistic, and pessimistic</b> estimates</li> <li>Used when historical data is insufficient, or subjective</li> </ul>	<ul style="list-style-type: none"> <li>May improve accuracy of single-point estimations by including risk and uncertainty factors</li> <li>Requires detailed resource information</li> <li>Requires expert knowledge to estimate tasks</li> </ul>
<b>Bottom-up</b>	<ul style="list-style-type: none"> <li>Uses <b>aggregates</b> of the estimates of the lower level components of the WBS</li> </ul>	<ul style="list-style-type: none"> <li>Very accurate and gives lower-level managers more responsibility</li> <li>May be very time consuming</li> <li>Can be used only after the WBS has been well defined</li> </ul>

## Estimating Techniques

		Advantages	Disadvantages
Analogous	<p>Uses <b>historical data</b> from a similar activity or project to estimate duration (or cost)</p> <p>aka "top-down estimating."</p>		
Parametric	<p>Uses an <b>algorithm</b> to calculate duration (or cost) based on historical data and project parameters.</p> <p>Durations can be <b>quantitatively determined</b> — multiply quantity of work to be performed by the number of labor hours per unit of work</p>		
Three-Point	<p>Defines an <b>approximate range</b> of an activity's duration, using <b>most likely, optimistic, and pessimistic</b> estimates</p> <p>Used when historical data is insufficient, or subjective</p>		
Bottom-up	<p>Uses aggregates of the estimates of the lower level components of the WBS</p>		



### Three-Point Estimation Examples

#### Triangular Distribution (average)

##### FORMULA

$$E = (O + M + P) / 3$$

- Optimistic = 3 weeks
- Most Likely = 5 weeks
- Pessimistic = 10 weeks

##### EQUATION

$$(3 + 5 + 10) / 3 = 6 \text{ weeks}$$



PERT is based on a probability distribution; therefore, we can calculate a standard deviation:

$$(P - O) / 6 = \text{PERT Standard Deviation}$$

#### BETA Distribution (PERT average)

##### FORMULA

$$E = (O + 4M + P) / 6$$

- Optimistic estimate = 3 weeks
- **Weighted** most likely estimate = 5 weeks
- Pessimistic estimate = 10 weeks

##### EQUATION

$$[3 + 4(5) + 10] / 6 = 5.5 \text{ weeks}$$

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## Three-Point Estimation Examples

### Triangular Distribution (average)

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### Beta distribution (PERT average)

What is PERT?

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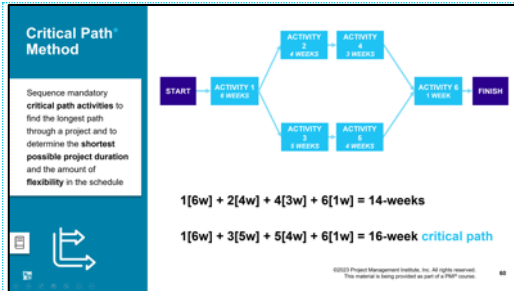
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## Critical Path Method

Sequence mandatory critical path activities to find the longest path through a project and to determine the shortest possible project duration and the amount of flexibility in the schedule

Process:

- Sequence mandatory **critical path activities** to find the longest path through a project and to determine the **shortest possible project duration** and the amount of **flexibility** in the schedule.
- Determine the length of each path in the diagram.
- The longest path is the critical path.

- Each activity is inside a box with its duration estimate.
- The arrows indicate the nature of a dependency

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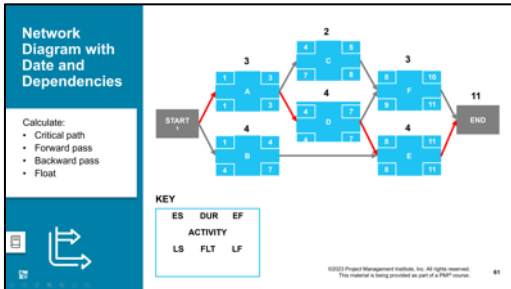
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$$1[6w] + 2[4w] + 4[3w] + 6[1w] = 14\text{-weeks}$$

$$1[6w] + 3[5w] + 5[4w] + 6[1w] = 16\text{-week critical path}$$





## Network Diagram with Date and Dependencies

Float

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*Free float will always be less than or equal to float.*

Early finish date (EF)

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Early start date (ES)

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Late finish date (LF)

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Late start date (LS)

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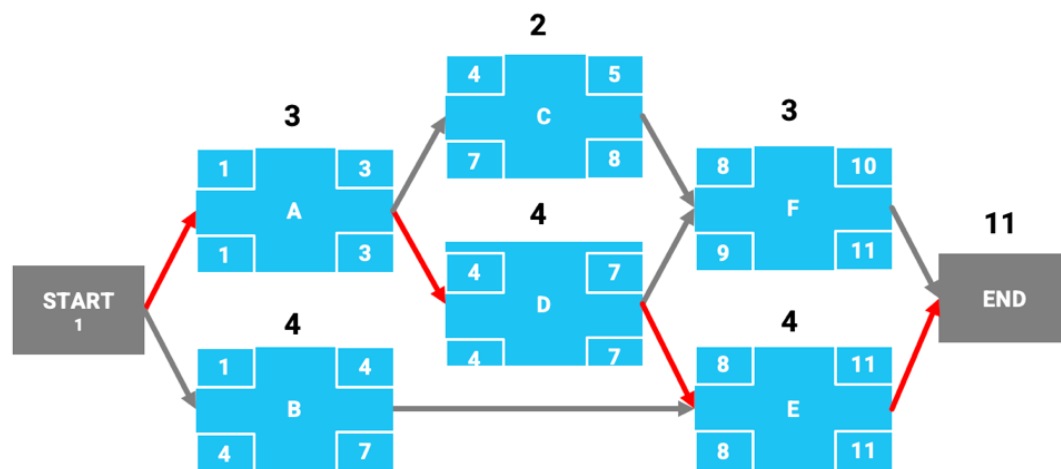


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*The example is explained below, for your information.* However, this is automated process done with software—e.g., Primavera—and these calculations are **not required on the exam.**





#### KEY

ES	DUR	EF
ACTIVITY		
LS	FLT	LF

Example:

- The first step would be to draw the diagram for the various activities noting their predecessors (arrows).
  - This will show the number of paths in the project. In this case there are four potential paths, ACF, ADF, ADE and BE.
  - By adding up the length (durations) of the various paths, the path with the longest duration is known as the critical path.
  - Remember though that there can be multiple critical paths. If the length of other paths are very close in length to the critical path, those are identified as "near" critical paths and will require monitoring by the project manager, so they do not also become a critical path.
- The next step is to do the forward pass to determine the early start (top left of box) and early finish (top right of box) date for each activity.
- Then perform the backward pass, the late start (bottom left) and late finish (bottom right) date can be determined.
- The difference between the early and late dates is known as the **float** or slack for the activity (ES minus LS and EF minus LF). Activities on the critical path will have a float or slack of 0 days.

*To double check on your forward and backward pass answers: the difference in days between the early and late start dates and the difference in days between the early and late finish dates should be the same number of days.*



The Project Schedule

- Includes start and finish activities
- Uses specific dates and in a certain sequence
- Sets dates for project milestones
- Coordinates activities to ensure on-time project completion
- Tracks project progress based on schedule performance and provides visibility of project status to upper management and project stakeholders

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## The Project Schedule

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Schedule Presentation Formats

Select the type of schedule to suit your project!

- Roadmap
- Gantt Chart
- Milestone Chart
- Project Schedule Network Diagram

Do you remember the name of the tool we used for scheduling activities in a project plan?

**Hint:** The output is a project schedule network diagram.

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## Schedule Presentation Formats

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Make a list here. We'll look at a few of them next.

Gantt Chart

Visualize and Track the Project Over a Time Line

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## Gantt Chart

Visualize and track the project over a time line!

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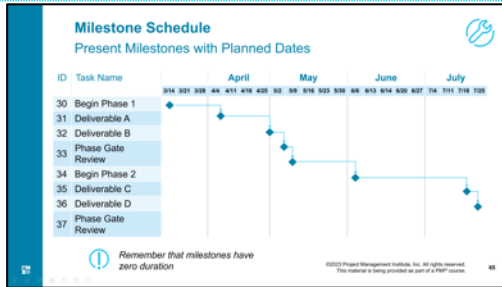
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## Milestone Schedule

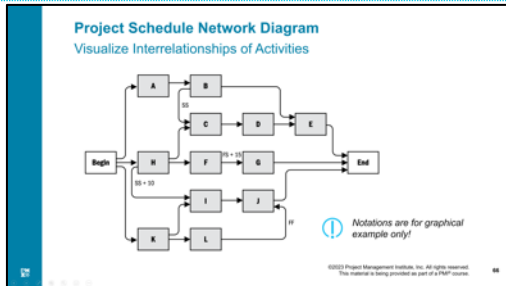
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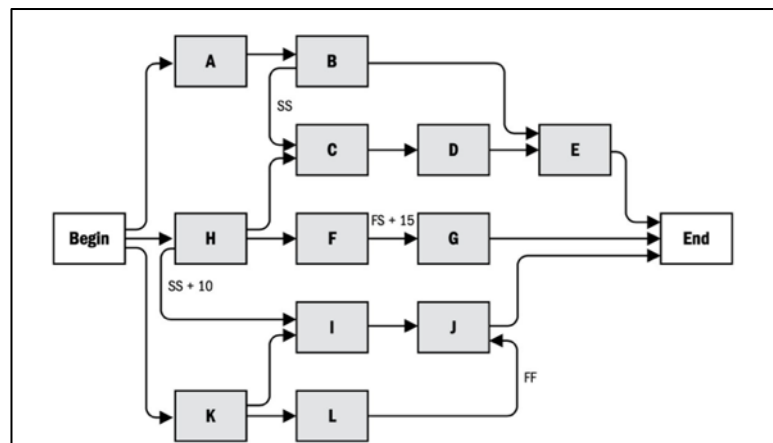
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## Project Schedule Network Diagram



## Visualize Interrelationship of Activities

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Can you identify the elements on the diagram?

- Activities
- Dependencies
- Predecessors
- Successors



Resource Optimization

**Smoothing**

- Adjusts the activities within predefined resource limits and within free and total floats
- Does not change the critical path nor delay the completion date
- Method may not be able to optimize all resources

**Levelling**

- Adjusts start and finish dates based on resource constraints
- Goal is to balance demand for resources with available supply
- Use when shared or critically required resources have limited availability or are over-allocated
- Can change the critical path

## Resource Optimization

Once the schedule is mapped out on the network diagram, it's time to allocate resources.

### Resource smoothing

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### Resource leveling

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Schedule Compression Techniques

**Fast-tracking**

- Perform activities in parallel to reduce time
- May result in rework, increased risk and increased cost

**Crashing**

- Shortens schedule duration for the least incremental cost by adding resources – e.g., overtime, additional resources
- Works only for activities on the critical path
- Does not always produce a viable alternative and may result in increased risk and/or cost

## Schedule Compression Techniques

### Fast tracking

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### Crashing

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## Schedule Baseline

Schedule baseline

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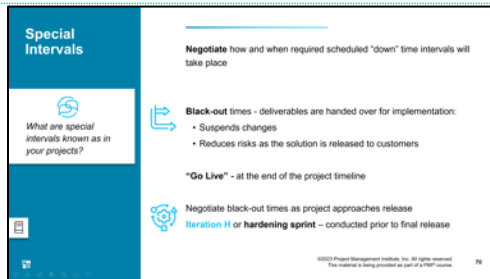
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How can changes be made to the schedule baseline?

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## Special Intervals

Examples:

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*Does your organization/project use special intervals? Give an example.*

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Hardening Iteration/Iteration H is related to quality:

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## Schedule Management in Adaptive Environments: Guidelines



- Depends on team composition and life cycle
- Project team works with the product owner to decide
- Develop the roadmap to show release functionality and timeframes
- Choose an approach:
  - Time-boxed scheduling with backlog
  - On-demand, continuous scheduling
- Project team selects activities for delivery within an iteration (or sprint)
- Teams produce increments of value for delivery and feedback

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## Schedule Management in Adaptive Environments: Guidelines

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### Adaptive Scheduling Approaches

#### Comparative View

##### On-Demand (Kanban/Lean-based)

- Allows individual requests to be addressed
- Levels out work of team members
- Best when activities are divided equally

⚠ Does not work well in projects with complex dependency relationships

Prioritize requests to determine start sequence then sequence stories individually through completion

Team pulls work from queue

Provides incremental business value

##### Time-boxed/iterative

- Uses progressive elaboration (rolling wave) to schedule activities
- Uses a specific work interval — e.g., two weeks
- Allows changes at any time during project

Define requirements with user stories then prioritize stories

Select work based on priority and time box; add remaining stories to backlog; reintroduce stories later, based on priority

Delivers business value early and incrementally

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## Adaptive Scheduling Approaches: Comparative View

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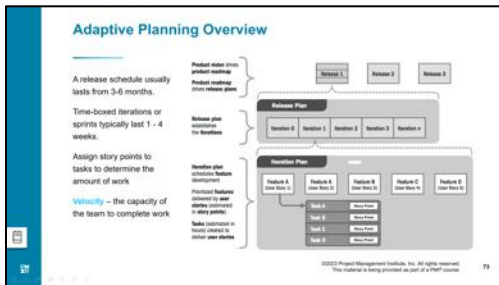
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## Adaptive Planning Overview

- A release schedule usually lasts from 3-6 months.
- Timeboxed iterations or sprints typically last 1 - 4 weeks.
- Assign story points to tasks to determine the amount of work.
- **Velocity** – the capacity of the team to complete work

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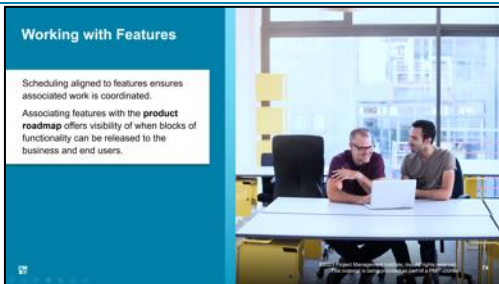
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## Working with Features

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### Agile Release Planning

#### Story Mapping

- Group stories by **sequence** and **priority**
- Sequence **features** and **functions** for the release
- Prioritize user stories in the **release backlog** and associate them with features and functions

The diagram illustrates the sequence of features needed in a release. It shows a timeline with features (represented by blue squares) and user stories (represented by yellow squares) mapped to them. The user stories are organized into a grid, with columns representing features and rows representing user stories. The grid shows how user stories are grouped by feature and how they are prioritized within each feature.

## Agile Release Planning

- Group stories by **sequence** and **priority**
- Sequence **features** and functions for the release
- Prioritize user stories in the **release backlog** and associate them with features and functions

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### Measure Effort, Not Time

**Relative sizing**

- Compares effort of multiple user stories through assignment of values (XS, S, M, L, XL)

**Story points**

- Uses a relative measure – e.g., numbers in the **Fibonacci sequence** – to identify the level of difficulty or complexity of a user story or task

**Planning poker**

- Estimates effort or relative size of development effort
- Uses a deck of cards with modified Fibonacci numbers to vote on user stories

## Measure Effort, Not Time

**Why** do we measure effort and not time?

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**How:**

- Relative sizing
- Story points
- Planning poker

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Hybrid Scheduling Models Example



Can you identify which aspects of this scheduling model are predictive and which are adaptive?  
Can you identify who does each of the tasks listed?

Project manager plans high-level project phases and milestones; scrum master runs sprints using agile processes

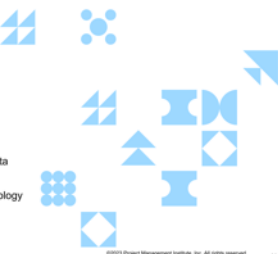
- Identify project work types and try to break them down
- Create a prioritized work backlog which fulfils project phase or achieves milestone
- Work in iterations/sprints of 2 - 4 weeks (use shorter sprints for less experienced team to facilitate alignment)
- Plan work before every iteration using prioritized backlog items
- Estimate every task to decide how many can fit in a single sprint
- Hold a retrospective at the end of every sprint; capture metrics to adjust timing and task estimate for next sprint



Can you identify which aspects of this scheduling model are predictive and which are adaptive?

Can you identify who does each of the tasks listed? The project manager, product owner or team?

ECO Coverage



**2.6 Plan and manage schedule**

- Predictive vs adaptive approach for schedule
- Estimate project tasks (milestones, dependencies, story points) (2.6.1)
- Utilize benchmarks and historical data (2.6.2)
- Prepare schedule based on methodology (2.6.3)

## Hybrid Scheduling Model Example

Project manager plans high-level project phases and milestones; scrum master runs sprints using agile processes.

- Identify project work types and try to break them down.
- Create a prioritized work backlog which fulfils project phase or achieves milestone.
- Work in iterations/sprints of 2 - 4 weeks (use shorter sprints for less experienced team to facilitate alignment)
- Plan work before every iteration using prioritized backlog items.
- Estimate every task to decide how many can fit in a single sprint.
- Hold a retrospective at the end of every sprint; capture metrics to adjust timing and task estimate for next sprint.

## End of Topic 3C

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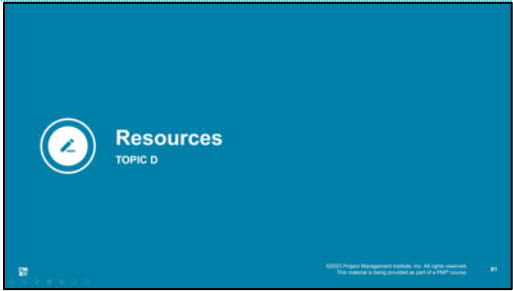
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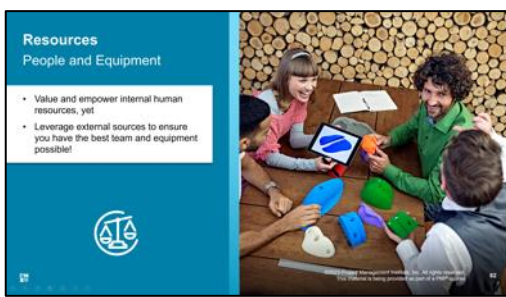
## TOPIC 3D | RESOURCES

### ECO Coverage

- 1.6 Build a team
  - Deduce project resource requirements (1.6.2)
- 2.11 Plan and manage procurement (resources)
  - Define resource requirements and needs (2.11.1)
  - Communicate resource requirements (2.11.2)
  - Manage suppliers/contracts (2.11.3)
  - Plan and manage procurement strategy (2.11.4)
  - Develop a delivery solution (2.11.5)

 A blue rectangular slide thumbnail with a white circular icon containing a pencil and eraser. To the right of the icon, the text "Resources" is written in white, with "TOPIC D" in smaller white text below it. At the bottom left, there is a small white icon. At the bottom right, there is small white text: "©2023 Project Management Institute, Inc. All rights reserved. This material is being presented as part of a PMIP course." and the number "81".	<h3>Topic 3D: Resources</h3> <p>Resources include both the people and equipment that will be needed to conduct the project activities. We also discuss how to plan for procurement of external resources in this section.</p>
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## Resources: People and Equipment

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*Recommended reading –*  
[“People Management”](#)  
[resource on PMI.org.](#)



## Resource Management Plan

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Take notes on what's included in the resource management plan.

Identify resources	
How to acquire them	
Peoples' roles and responsibilities	
Role	
Authority	
Responsibility	



Competencies and skills required	
Project Organization Chart	
Project team resource management	
Training	
Team development methods	
Resource controls	
Recognition plan	

**Assign Resources and Allocate Responsibilities**

- Assign team members to project
- Decide roles and responsibilities
- Create team directory, organization chart and the schedule

Project schedules, resource assignments and budgets are all interrelated and can be created at the same time.

- Tailor responsibilities according to team, needs and project approach
- Consider technical and "soft" skills:
  - Experience, knowledge, skills
  - Attitude
  - Global/regional factors

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## Assign Resources and Allocate Responsibilities

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Consider both technical and 'soft' skills and competencies

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**Use Resource Calendars\***

- Document resource availability (people, equipment, material, etc.) during a planned activity period.
- Use when estimating project activities and understanding dependencies
- Specifies when, and for how long, identified team and physical resources will be available during the project
- Progressively elaborate and update it throughout the project

Resource calendars can be used in any kind of project!

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## Use Resource Calendars

Resource calendar definition and use:

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**Responsibility Assignment Tools**

Responsibility assignment matrix (RAM) or **RACI** chart:

- Designates types of accountabilities assigned to resources or stakeholders
- Keeps information visible

RESPONSIBLE	ACCOUNTABLE	CONSULT	INFORM
A team member	On the team (leadership/management)	Stakeholders	Usually not project decision makers
<ul style="list-style-type: none"> <li>• Performs work to complete the task or create the deliverable</li> <li>• Every task has at least one responsible person</li> </ul>	<ul style="list-style-type: none"> <li>• Delegates and reviews the work involved in a project</li> <li>• Ensures the responsible person/team knows project expectations and completes work on time</li> <li>• Each task has only one accountable person</li> </ul>	<ul style="list-style-type: none"> <li>• Provides input and feedback on project work</li> <li>• Not every task or milestone needs a consulted party</li> <li> Consider all stakeholders, but invite only necessary input</li> </ul>	<ul style="list-style-type: none"> <li>• Needs to be informed of project progress because their work might be affected, but don't need details</li> </ul>

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## Responsibility Assignment Tools

Responsibility assignment matrix (RAM):

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Fill in the category descriptions of the RACI chart.

Responsible	
Accountable	
Consulted	
Informed	

**Adaptive Resource Planning Quiz**

Which of these are true? (Choose several)

- Teams self-organize to distribute work.
- Adaptive teams never have a leader.
- Team members are a mix of generalists and specialists.
- Team members should be T-shaped.

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## Adaptive Resource Planning Quiz

You should have done this quiz in class.

Which of these are true? (Choose several)

- Teams self-organize to distribute work.
- Adaptive teams never have a leader.



	<ul style="list-style-type: none"> <li>• Team members are a mix of generalists and specialists.</li> <li>• Team members should be T-shaped.</li> </ul>
Quiz answer	<p>All are 'true' except "Adaptive teams never have a leader."</p> <p>Teams self-organize, and hybrid teams can have a centralized management model with a project manager or a team lead. 'Never' is incorrect here, because it can be useful to have a team lead, an agile coach, a facilitator, and so on. Another way of answering this is to say that everyone is a leader—a servant leader</p>



Filling Resource Needs  
Make or Buy? Borrow?

External sourcing considerations:

- What is the impact on cost, time or quality?
- Is there an ongoing need for the specific skill set?
- How steep is the learning curve?
- Are required resources available within the organization?
- Would outsourcing allow the team to focus?

Use a **make-or-buy analysis** to make the best decision for your team.

**Make-or-buy decisions** are part of a procurement strategy.

## Filling Resource Needs: Make or Buy? Borrow?

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## Make-or-buy-analysis

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## Make-or-buy-decisions

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Plan the Procurement Strategy

- Prerequisite OPAs
- Acquisition method
- Contract types
- Procurement phases

- Work with organization's finance or procurement department
- Use pre-approved vendors before requesting a new vendor
- Observe purchase amount limits per signatory — i.e. contracts valued over a certain threshold must be co-signed
- Use defined bidding process and templates
- Require RFPs for contracts valued over a certain threshold
- Follow escalation procedures for approval of spending limits
- Pay contracts at a defined time — e.g., upon completion of work or at the end of a project, with net payment terms

## Plan the Procurement Strategy

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Procurement Management Plan

- Specifies the types of contracts that will be used
- Describes the process for obtaining and evaluating bids
- Mandates standardized **procurement documents**
- Describes how providers will be managed

*Your organization's procurement function will be involved in developing this plan. Work with them closely and use the correct procurement documents to avoid problems.*

## Procurement Management Plan

Define/describe:

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Procurement Documents  
Bid and Proposal Activities

- Statement of Work (SOW):** Details of work required
- Request for quotation (RFQ):** Bid/tender or quotation, including only cost
- Invitation for Bid (IFB):** Buyer requests expressions of interest in work
- Request for information (RFI):** Buyer requests more information from seller
- Request for proposal (RFP):** Buyer-issued statement of work required
- Expression of Interest (EOI):** Seller-issued expression of interest in work

## Procurement Documents: Bid and Proposal Activities

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Statement of work

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Formal Procurement Processes

RFPs, Bidder Conferences

Organizations in highly regulated industries or government

Or, if a project needs specialist work or wants to find the best quality available.

Use RFPs, bidder conferences, and formal processes to ensure all prospective vendors have a clear and common understanding of the procurement

Work closely with the procurement officer or department

## Formal Procurement Processes: RFPs, Bidder, Conferences

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### Request for proposal (RFP)

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### Bidder conferences

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Source Selection Criteria

Work with external resources whose values, skills and attributes are aligned with your project.

- Overall or life-cycle cost
- Understanding of need
- Technical capability
- Management approach
- Technical approach
- Warranty
- Financial capacity
- Production capacity and interest
- Business size and type
- Past performance of sellers
- References
- Intellectual property rights
- Proprietary rights

## Source Selection Criteria

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Qualified Vendors

- Are pre-approved by the organization
- Have a history of work with the organization
- Are often "preferred" because they are proven, and their accounts are already set up

Look in the lessons learned repository to find historical data about vendors.

Qualified Vendors

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Contracts\*  
Negotiate Productive Relationships

Contracts:

- Legalize working agreements
- Give structure to working relationships
- Further collaboration with partners
- Consider risks associated with contract types
- Deliver benefits to the buyer - different benefits by type
- Can be tailored for the partnership

Contracts: Negotiate Productive Relationships

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Contract Types (1 of 3)

**Cost-reimbursable contracts** - For projects with expected, significant scope changes

Involves payments (cost reimbursements) to the seller for all legitimate actual costs incurred for completed work, plus a fee (seller profit)

- Cost plus fixed fee (CPFF)**
  - Reimburses seller for all allowable costs for performing contract work; fixed fee payment calculated as a percentage of the initial estimated project costs.
  - Fee amounts do not change unless the project scope changes.
- Cost plus incentive fee (CPIF)**
  - Reimburses seller for all allowable costs for performing contract work; predetermined incentive fee based for achieving contract-specified performance objectives.
  - Shares costs between buyer and seller if final costs are less or greater than the original estimated costs.
  - Bases cost sharing on a pre-negotiated cost-sharing formula — e.g., an 80/20 split over/under goal costs.
- Cost plus award fee (CPAF)**
  - Reimburses seller for all legitimate costs.
  - Bases majority of fee on satisfying subjective performance criteria defined and incorporated into the contract.
  - Determines fee based on buyer's assessment of seller performance and not subject to appeals.

## Contract Types (1 of 3)

### Cost-reimbursable contracts

#### Cost plus fixed fee (CPFF)

#### Cost plus incentive fee (CPIF)

#### Cost plus award fee (CPAF)

Contract Types (2 of 3)

**Fixed-price contracts** — sets a fixed total price for a defined product, service, or result; used when requirements are well defined and no significant scope changes are expected.

**Firm fixed price (FFP)**

Price of goods set at beginning; won't change unless scope changes

- Gives buyer and seller flexibility
- Allows for deviation from performance — i.e., financial incentives tied to achieving agreed-upon metrics (cost, schedule, awesomeness)
- Sets price ceiling; any further costs charged to seller

**Fixed price with economic price adjustments (FPEPA)**

- Allows for special provisions for predefined final adjustments to the contract price — e.g., inflation, cost increases (or decreases) for specific commodities

**Pre-approved vendors or international payments**

## Contract Types (2 of 3)

### Fixed-price contracts



### Firm fixed price (FFP)

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### Fixed price incentive fee (FPIF)

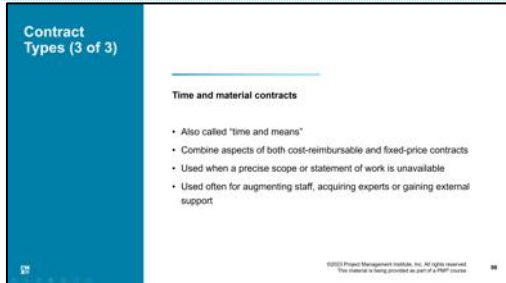
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### Fixed price with economic price adjustments (FPEPA)

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## Contract Types (3 of 3)

### Time and materials contracts

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"Agile" Contract Types	
Multi-tiered structure	<ul style="list-style-type: none"> <li>Create a master service agreement to capture fixed items - e.g., warranties, arbitration</li> <li>List variable items in a schedule of services - e.g., service rates, product descriptions</li> <li>Use a SOW to itemize dynamic items - e.g., scope, schedule, budget</li> </ul>
Emphasize value delivered	<ul style="list-style-type: none"> <li>Structure milestones and payment terms based on value derived at milestones</li> <li>Focus on the value of feedback in product development</li> </ul>
Fixed-price increments	<ul style="list-style-type: none"> <li>Decompose scope into smaller, fixed-price micro-deliverables (user stories), giving customer more control over how the money is spent and limiting the supplier's financial risk</li> </ul>
Not-to-exceed time and materials	<ul style="list-style-type: none"> <li>Limit budget to fixed amount, allowing customer to add ideas by removing existing ones</li> <li>Monitor work to avoid overage (or add contingency hours)</li> </ul>
Graduated time and materials	<ul style="list-style-type: none"> <li>Connect quality and timely delivery of work (use DoD) to financial award - reward for early and reduce for late delivery</li> </ul>
Early cancellation option	<ul style="list-style-type: none"> <li>Enable flexible delivery of scope, using DoD - e.g., if partial scope delivery satisfies customer, contract can be cancelled for a fee</li> </ul>
Dynamic scope option	<ul style="list-style-type: none"> <li>Gives option to vary scope and fund innovation at specific points while limiting supplier risk</li> <li>Vary scope at specific points to adjust features and innovate</li> </ul>
Team augmentation	<ul style="list-style-type: none"> <li>Embed supplier's services directly into the customer organization; fund team instead of scope</li> </ul>

## "Agile" Contract Types

- *Tailor contracts to suit needs.*
- *These contract types are not exclusive to agile projects.*



*The Agile Practice Guide – pp 77-78*

Multi-tiered structure	
Emphasize value delivered	
Fixed-price increments	
Not-to-exceed time and materials	
Graduated time and materials	
Early cancellation option	
Dynamic scope option	
Team augmentation	



## Components of Contracts

- Description of work - deliverables and scope
- Delivery date and schedule information
- Identification of authority, where appropriate
- Responsibilities of both parties
- Management of technical and business aspects
- Price and payment terms
- Provisions for termination
- Applicable guarantees and warranties
- Intellectual property
- Security, confidentiality, data privacy

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## Components of Contracts

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## ECO Coverage

### 1.6 Build a team

- Deduce project resource requirements (1.6.2)

### 2.11 Plan and manage procurement (resources)

- Define resource requirements and needs (2.11.1)
- Communicate resource requirements (2.11.2)
- Manage suppliers/contracts (2.11.3)
- Plan and manage procurement strategy (2.11.4)
- Develop a delivery solution (2.11.5)

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## End of Topic 3D

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## TOPIC 3E | BUDGET

### ECO Coverage

- 2.5 Plan and manage budget and resources
- Estimate budgetary needs based on the scope of the project and lessons learned from past projects (2.5.1)
  - Anticipate future budget challenges (2.5.2)
  - Plan and manage resources (2.5.4)



### Topic 3E: Budget

In this area of planning, you determine the budget/finance structure, relationships and amounts for your project.

Will you be aligning a budget with scope and schedule requirements in a predictive life cycle?

Or collaborating with partners and internal finance stakeholders to craft a suitable financial solution, as the agile mindset suggests?

It's likely a combination of both! We'll look at both approaches and show the benefits of tailoring a budget.



### Budget Planning Overview

Consider:

- Cost as well as value
- Organization and stakeholder attitudes towards budget and costs

Create budget in accordance with project life cycles:

- Begin with fixed budget and amend with change control process
- Hybrid approaches add adaptability around surety
- Use *burn rate*
- Agile teams collaborate with stakeholder partners and finance stakeholders to suggest incremental budgeting approaches (agile mindset)

## Budget Planning: Overview

### Burn rate

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Consider:

- Cost as well as value
- Organization and stakeholder attitudes towards budget and costs

### Predictive Budget Planning

- Create a *cost management plan*
- Employ *estimating techniques* to assign costs to activities
- Tailor a *cost baseline*
  - Is used to monitor and measure cost performance throughout the project (compares with actual results)
  - Includes budget contingencies to address identified risks
  - Can be changed only through formal change control procedures

The *budget at completion (BAC)* is the highest point on the cost baseline. The BAC is the sum of all budgets established, or the value of total planned work.

## Predictive Budget Planning

### Cost management plan

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### Cost baseline

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## Budget at completion (BAC)

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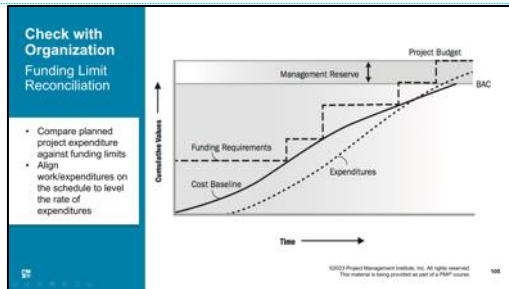
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## Cost baseline

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## Check with Organization: Funding Limit Reconciliation

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## Historical Data: Start with What's Known

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## Resource Costs



- Match project need to resource attributes (availability, experience, knowledge/skills, attitude)
- Create initial estimate based on average rate
- Modify as needed
- Assign a blended rate
- Estimate points (effort) using planning poker or affinity diagram to find the number of user stories that can be completed based on team velocity
- Use a simple formula to estimate the cost per point:
  - $\Sigma$  (loaded team salaries for period n) / points completed in interval n
- Use a formula to estimate budget:
  - (Cost per point \* total point value of items to be completed) + other expenses = forecast budget

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## Resource Costs



### Predictive

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### Adaptive

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## Estimate Costs



Estimate the cost for each activity or work package in a project.

Cost estimates should include:

- Direct labor
- Materials
- Equipment
- Facilities
- Services
- Information technology
- Contingency reserves

Use:

- Rough order of magnitude (-25 to +75%)
- Definitive Estimate (-5 to +10%)
- Phased estimate



Expecting the scope to change?  
Use lightweight estimation methods for high-level estimating.

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## Estimate Costs



### Predictive

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### Adaptive

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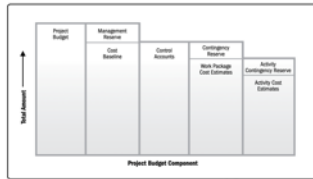


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## Project Budget

- Use the bottom-up approach to aggregate activity costs, work package costs and cost baseline
- Include contingencies to support risk management



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## Project Budget

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## Adaptive and Hybrid Budget Planning Guidelines/Example



- Focus on short-term budgeting and metrics versus long-term
- Set time periods for work and prioritize work within those time periods.
- Base cost on the resources used for that time period



### Examples

- Estimate budget based on current data, plus a forecast algorithm that is based on historic data or expert guidance — e.g., lean or Kanban
- Use a "top-down" approach, using gross-level estimation techniques such as planning poker and affinity grouping on feature sets, then employing progressive elaboration and rolling-wave planning methods to drill down to the task level on a just-in-time basis (iteratively)
- Revise budget at sprint planning intervals

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## Adaptive and Hybrid Budget Planning: Guidelines/Example



Adaptive

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Hybrid

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### Budget Considerations



- Estimate budget based on the length of time of the project
- Burn rate includes:
  - Number of team members
  - Blended or actual team member rates
  - Time of involvement
- Assumption of full-time team involvement
- If additional equipment or supplies are required, add them to the estimated cost


Product owner may control the budget, depending on team composition.

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## Budget Considerations

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### ECO Coverage



#### 2.5 Plan and manage budget and resources

- Estimate budgetary needs based on the scope of the project and lessons learned from past projects (2.5.1)
- Anticipate future budget challenges (2.5.2)
- Plan and manage resources (2.5.4)

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## End of Topic 3E

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## TOPIC 3F | RISKS

### ECO Coverage

- 2.3 Assess and manage risks
  - Determine risk management options (2.3.1)
  - Iteratively assess and prioritize risks (2.3.2)
- 3.1 Plan and manage project compliance.
  - Determine necessary approach and action to address compliance needs (risk, legal) (3.1.6)
  - Determine potential threats to compliance (3.1.3)

 A blue rectangular slide thumbnail with a white circular icon containing a pencil and the text 'Risks TOPIC F' in white. At the bottom left is a small 'PMI' logo, and at the bottom right is small text: '©2023 Project Management Institute, Inc. All rights reserved. This material is being provided as part of a PMI course.' and the number '113'.	<h3>Topic 3F: Risks</h3> <p>Things will go wrong on a project.</p> <p>However, rather than being reactive to risk, we can be prepared with a strategy, a toolkit of possible responses and a growth mindset to be proactive about risk planning.</p>
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Risk

Conditions of Uncertainty

- Risk originates from a wide range of known and unknown causes within and outside the business environment.
- Risk development is indicated by a **trigger condition**.
- Risks can be positive (**opportunities**) or negative (**threats**).
- If a risk becomes an **issue**, you must act!

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## Risk: Conditions of Uncertainty

### Trigger condition

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### Opportunity

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### Threat

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### Issue

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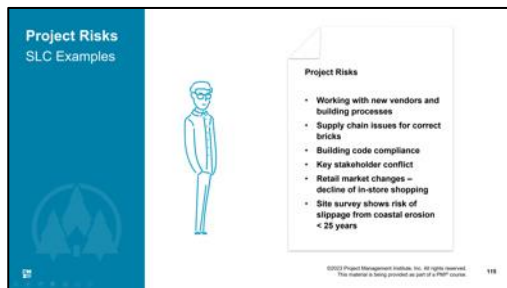


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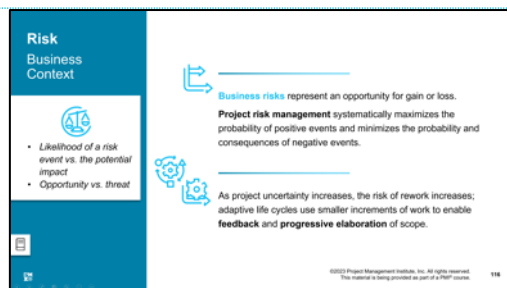
*This example relates to the optional Shawpe (SLC) case study exercise (self-study) included with this course.*

## Project Risks SLC Example

### Project Risks

- Working with new vendors and building processes
- Supply chain issues for correct bricks
- Building code compliance
- Key stakeholder conflict (Josie Bynoe)
- Retail market changes – decline of in-store shopping
- Site survey shows risk of slippage from coastal erosion < 25 years

This is a list of project risks, identified by the project manager and the team before the project starts.



## Risk: Business Context

### Business risk

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Likelihood vs. probability

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Opportunity vs. threat


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### Create Risk Strategy

First, understand risk parameters for the organization and the project!



How would you describe the organization's project's **risk appetite**?

- Risk-seeking?
- Risk-neutral?
- Risk-averse?

The **risk threshold** is tied to individual and organizational risk appetites. Do you know:

- Which are too high to accept?
- Which are low enough to just be accepted?

What criteria determines inclusion in the **risk register**?

**Management Guidelines**

- Use qualitative (high, medium, low, etc.) or quantitative (numerical) ratings
- Set a maximum risk exposure level that can be managed without escalation

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## Create Risk Strategy

Include data and attitudes of the organization as well as the project.

- Risk appetite

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- Risk threshold


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### Define/Refine Risk Management Approach



Set initial risk strategy, then define and refine it!

Factor in project characteristics:

- Size
- Complexity
- Importance
- Development approach

Create a **risk management plan**

In the plan:

- Risk strategy
- Methodology
- Roles and responsibilities
- Funding
- Timing
- Risk categories
- Stakeholder risk appetite
- Definition of risk probability and impact
- Probability and impact matrix
- Reporting formats
- Tracking documents

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## Define/Refine Risk Management Approach

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Factor in project characteristics:

- Size
- Complexity
- Importance
- Development approach
- Risk management plan

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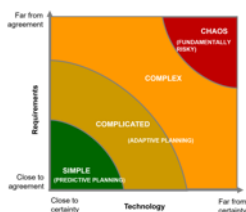


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### Inherent Risk



- Agile projects include risks in user stories and as part of backlog work items
- Teams discuss risks at planning meetings, during the normal course of work
- Teams place risks in a **risk register**, use **information radiators** to ensure visibility and a **backlog refinement** process that includes constant risk assessment



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## Inherent Risk

Describe how Agile teams approach inherent risk:

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How do we calculate or determine inherent risk?

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Stacey diagram



### Risk Identification Techniques

Use a *prompt list* to evaluate the external environment for risks.

#### Data Gathering and Analysis

- Risk breakdown structure (RBS)
- Brainstorming
- Nominal group technique
- SWOT analysis
- Affinity diagram
- Assumption analysis
- Document review
- Delphi technique
- Monte Carlo simulation (larger organizations)

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## Risk Identification Techniques

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## Prompt list

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## Risk breakdown structure (RBS)

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## Affinity diagram

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## Risk Breakdown Structure

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## Assess Risks: Qualitative *then* Quantitative

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## Create Risk Probability and Impact Definitions

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## Probability and Impact Matrix

- Use numeric values and/or colors
- If using numbers, multiply them to give a probability impact score – this makes evaluating relative priority easier!

**This is NOT a quantitative evaluation.**



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## Probability and Impact Matrix

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## Risk Register®

Risk Description	Impact Description	Impact Level Score	Probability Level Score	Risk Score (probability and impact multiplied)	Trigger Condition	Planned Response	Owner
	What will happen if the risk is not mitigated or eliminated?	Rate 1 (LOW) to 5 (HIGH)	Rate 1 (LOW) to 5 (HIGH)	(IMPACT X PROBABILITY) Address highest first	What indicates the risk will occur?	Action plan	Who is responsible?
Supply chain issues for correct bricks		5	1	5	Supplier modification		L. De Souza
Building code compliance		5	2	10	Pre-checks fail		K. Apurung
Working with new vendors and building processes		3	3	9	Delays or conflict		K. Apurung

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## Risk Register: Example

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## Risk List

Risk	Probability (1-10)	Impact (1-10)	Magnitude
Working with new vendors and building processes	5	5	25
Supply chain issues for correct bricks	5	10	50
Building code non-compliance	5	10	50
Key stakeholder conflict (Jesse Byrnes)	4	5	24
Retail market declining	8	10	80
Site survey shows risk of slippage from coastal erosion + 20 years	5	3	15

Teams can add (tailor) columns for:

- Owner
- Status
- Date identified
- Date resolved
- Days active
- Resolution strategy

In addition to a risk list or a risk register, teams use information radiators and a backlog refinement process with risks added, which are discussed at various planning meetings.

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## Risk List (Example)

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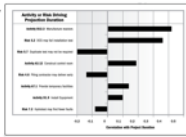
## Quantitative Risk Analysis Methods

(1 of 2)

- Simulations
- Sensitivity analysis
- Decision tree analysis
- Influence diagrams
- Expected monetary value (EMV)



- Simulations** - Use computer models to determine risk factors
  - Monte Carlo simulations** produce a quantitative risk analysis model by using schedule and/or cost inputs to produce an integrated quantitative cost-schedule risk analysis
- Sensitivity analysis** -
  - Output is the **Tornado diagram**, a horizontal bar chart comparing relative importance of various risks, highest on top



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## Quantitative Risk Analysis Methods

### Simulation

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### Monte Carlo simulation (risk analysis)

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### Sensitivity analysis

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### Quantitative Risk Analysis Methods

(2 of 2)

- Simulations
- Sensitivity analysis
- Decision tree analysis
- Influence diagrams
- Expected monetary value (EMV)

#### Decision tree analysis

- Branches represent decisions or events, each with associated costs and risks
- The end-points of branches represent the outcome (negative or positive)

#### Influence diagrams

- Quality management graphical aid
- Shows elements of uncertainty caused by risks using ranges or probability distributions

ⓘ Used when decision trees are too complex.

#### Expected Monetary Value (EMV)

- Multiply the monetary value of a possible outcome with its probability of occurrence to calculate the EMV of each branch
- Select the optimal one

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(2 of 2)

## Decision tree analysis

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## Influence diagram

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## Expected monetary value (EMV)

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### Risks

Time, Cost and Life Cycle

"Predictive projects are most often affected by the impact of cost-related risks, whereas adaptive projects are affected by the impact of time-related risks."

ⓘ Do you agree or disagree? Why?

ⓘ Do you think each of these typical risks is more typical of predictive or adaptive project? Can you explain why?

#### Typical Risks

- Delivery date slips
- Stretched resources
- Lack of clarity
- Scope creep

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### Delivery date slips:

*Though adaptive projects use a dynamic scheduling model, controlling work in sprints/iterations using cadences and timeboxing, it's possible that customers want teams to work even faster, or the schedule rolls on and on with no "end" in sight from stakeholders' points of view.*

## Risks: Time, Cost and Life Cycle

Read this list of typical risks and think about how the project's life cycle affects the probability or severity of that risk. We did the first one for you (at left).

### Example risks:

- Delivery date slips
- Stretched resources
- Lack of clarity
- Scope creep

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### Risk Response

#### Good Practice

Risk responses should be:

- Appropriate for the significance of the risk
- Cost effective
- Realistic within the project context
- Agreed to by relevant stakeholders
- Owned by a responsible person



## Risk Response: Good Practice

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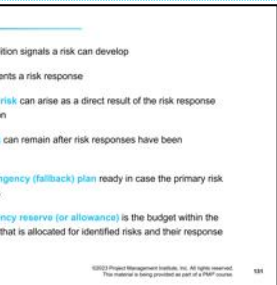
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### Plan Risk Response

#### Guidelines and Terminology

- A trigger condition signals a risk can develop
- Team implements a risk response
- A **secondary risk** can arise as a direct result of the risk response implementation
- **Residual risk** can remain after risk responses have been implemented
- Have a **contingency (fallback) plan** ready in case the primary risk response fails
- The **contingency reserve (or allowance)** is the budget within the cost baseline that is allocated for identified risks and their response strategies



## Plan Risk Response: Guidelines and Terminology

### Secondary risk

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### Residual risk

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### Contingency plan

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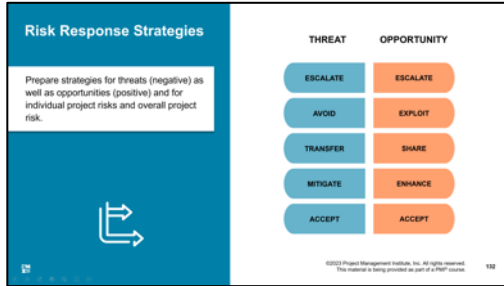


## Contingency reserve

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## Risk Response Strategies

### Threat

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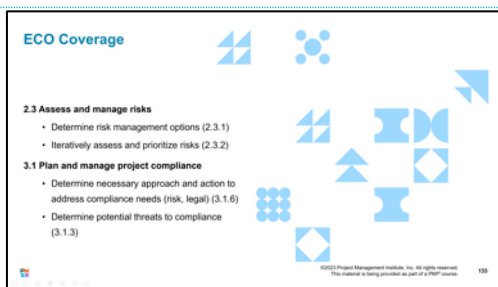
### Opportunity

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## End of Topic 3F

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## TOPIC 3G | QUALITY

### ECO Coverage

- 2.7 Plan and manage quality of products/deliverables
  - Determine quality standard required for project deliverables (2.7.1)
- 3.1 Plan and manage project compliance
  - Use methods to support compliance (3.1.4)
  - Measure the extent to which the project is in compliance (3.1.7)



### Topic 3G: Quality

Planning for quality applies to the outcomes and deliverables as well as the processes used in the project.



### Quality

The degree to which a set of inherent characteristics fulfil requirements.

Include:

- Stakeholder expectations and end-user satisfaction
- Compliance with standards and regulations
- Continuous improvement

Quality

### Cost of Quality (CoQ)

Money spent during project to avoid failure

- Prevention costs (Build a quality product)
  - Training
  - Document processes
  - Equipment
  - Time to do work 'right' – resources, infrastructure expenses
- Appraisal (quality assessment)
  - Testing
  - Inspections

Money spent during/after project because of failures

- Internal failure costs
  - Rework
  - Scrap
- External failure costs
  - Liabilities
  - Warranty work
  - Lost business

Cost of Quality (CoQ)

Cost of Quality is based on Philip Crosby's Quality is Free.



Stakeholder and Customer Expectations of Quality

PRODUCT/DELIVERABLE

Identify quality requirements during requirements elicitation; create **quality management plan**.

PROCESSES

Ongoing observation and checking of processes stated in quality management plan; overseen by a **quality policy**.


Your organization should have a **quality policy** which applies to all projects. If your organization does not have a quality policy, then your project needs to create one.

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## Stakeholder and Customer Expectations of Quality

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### Quality management plan

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### Quality policy

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### Product/deliverable

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### Processes


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### Quality Management Plan

- Activities and resources that achieve the quality objectives
- Formal or informal, detailed or broadly framed
- Reviewed throughout the project
- Benefits:
  - Sharper focus on the project's value proposition
  - Cost reductions
  - Mitigated schedule overruns from rework



## Quality Management Plan

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### Compliance Requirements

Internal and external standards, such as:

- Appropriate government regulations
- Organizational policies
- Product and project quality requirements
- Project risk

Compliance actions:

- Classify compliance categories
- Determine potential threats to compliance
- Analyze the consequences of noncompliance
- Determine necessary approach and action to address compliance needs



## Compliance Requirements

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Internal and external standards, such as:

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Compliance actions

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Quality Standards and Regulations		
	Standards	Example
	Documents established as a model by an authority, custom, or by general consent.	Dictionary
	Requirements that can establish product, process, or service characteristics, including applicable administrative provisions with government-mandated compliance.	Language rules
De facto standards or regulations	Widely accepted and adopted through use, but not yet . . .	Words are used widely in groups, like slang or jargon.
De jure standards or regulations	Mandated by law or approved by a recognized body of experts.	Word enters dictionary and becomes a defined word.
<p>! A number of international institutes are devoted to quality, including:</p> <ul style="list-style-type: none"> <li>• American Society for Quality (ASQ) - ISO 9000 Series</li> <li>• The Chartered Quality Institute (CQI)</li> <li>• ASTM International</li> </ul>		

## Quality Standards and Regulation

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What standards are relevant in your industry?

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## Discussion: Quality Standards and Regulations

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*Note your and other participant responses to this discussion question, as it helps you to frame project management content in scenario format.*



## Quality Metrics, Checklists, and Processes



**Metrics** measure desired quality attributes for your product or project through testing, use of tools, processes.

Include a tolerance level that factors in what the customer will accept and describe the desired quality level in the acceptance criteria and DoD.

Include **checklists, templates** and **quality artifacts** in the quality management plan.



Adaptive teams use retrospectives and small batch cycles to ensure quality.

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## Quality Metrics, Checklists and Processes

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## Quality Methods for Continuous Improvement

**Six Sigma (aka Lean Six Sigma)** – DMAIC framework (Define, Measure, Analyze, Improve, Control) – focus on removing waste

**Kaizen** – “change for better/improve”

(PDCA) Plan – Do – Check – Act – Shewhart/Deming

Agile methods - Scrum, Kanban, Crystal Methods (software), etc.

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## Quality Methods for Continuous Improvement

- Six Sigma (aka Lean Six Sigma) – DMAIC framework
- **Kaizen** – “change for better/improve”
- (PDCA) Plan – Do – Check – Act – Shewhart/Deming
- Agile methods - Scrum, Kanban, Crystal Methods

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*Lesson 5 delivers a more detailed look at continuous improvement. We recommend reading ahead about the methods listed on this page.*

## ECO Coverage

### 2.7 Plan and manage quality of products / deliverables

- Determine quality standard required for project deliverables (2.7.1)

### 3.1 Plan and manage project compliance

- Use methods to support compliance (3.1.4)
- Measure the extent to which the project is in compliance (3.1.7)

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## End of Topic 3G

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## TOPIC 3H | INTEGRATE PLANS

### ECO Coverage


- 2.9 Determine appropriate project methodology/ methods and practices
  - Consolidate the project/phase plans (2.9.1)
  - Assess consolidated project plans for dependencies, gaps, and continued business value (2.9.2)
  - Analyze the data collected (2.9.3)
  - Collect and analyze data to make informed project decisions (2.9.4)
  - Determine critical information requirements (2.9.5)
- 2.10 Manage project changes
  - Determine strategy to handle change (2.10.2)

	<h3>Topic 3H: Integrate Plans</h3> <p>Finally, project professionals integrate all planning activities to support the activities to deliver the vision and expected value. The key to doing this as seamlessly as possible is having an effective strategy for <b>change management</b>.</p> <p>This topic addresses both the predictive process of project plan integration and change management that is required of all projects.</p>
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### Integrating Plans


An Important Step



Overall, the scope, schedule, budget, resources, quality and risk plans must support desired outcomes.

An integrated view of all plans can:

- Identify and correct gaps or discrepancies
- Align efforts and highlight how they depend on each other — so your team works better!
- Help assess and coordinate the project during its life cycle

 The result of this step is an *integrated project management plan*!

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## Integrating Plans: An Important Step



Why is plan integration important? Explain.

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Integrated project management plan

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## Integrate Plans



At the end of the planning stage, combine all planning results from knowledge areas.



Specific to project manager role, this task cannot be delegated.



Reframe the approach to "plan integration" and figure out a way forward to work with the various planning elements – adapt it while working!



Adaptive processes and agile ceremonies provide a structure to continuously integrate plans or aspects of a project.

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## Integrate Plans



Describe plan integration in a predictive approach.

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What do we mean by reframing the approach to plan integration in hybrid approaches?

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How do adaptive projects provide a structure for integrated planning?

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Change Control	
<p>Use a change management plan to set a process and assigned roles for change</p>	
<p>Questions about Change</p> <p>Who can propose a change?</p> <p>What exactly constitutes a change?</p> <p>What is the impact of the change on project objectives?</p> <p>What are steps to evaluate a change request before approving or rejecting it?</p> <p>Who has the authority to approve various types and levels of change?</p> <p>When a change request is approved, what project documents will record the next steps (actions)?</p> <p>How will you monitor these actions to confirm completion and quality?</p>	<p>Typical Answers</p> <p>Roles are assigned</p> <p>A change is proposed or an event changes one of the project baselines or measures</p> <p>Recommend evaluation method</p> <p>Required steps per quality policy</p> <p>Change control board, other approvals</p> <p>Change log</p> <p>Quality metrics, RAMRACI charts, information radiators</p>

## Change Control



Use a change management plan to set a process and assigned roles for change.

### Change management plan

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### Change request (CR)

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### Plan for Complexity and Change

- Organization's system
- Human behavior
- Uncertainty or ambiguity

**Systems-based**

- Decoupling:** Disconnect parts of the system to simplify it and reduce the number of connected variables
- Simulation:** Use similar, unrelated scenarios to try to understand the complexity

**Reframe the Problem**

- Diversity:** View the system from different perspectives
- Balance:** Reconsider the type of data used

**Process-Based**

- Iterate:** Plan iteratively or incrementally; add features one at a time
- Engage:** Really engage with stakeholders
- Fail safe:** Plan for failure

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## Plan for Complexity and Change

- Organization's system
- Human behavior
- Uncertainty or ambiguity

### Systems-based

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### Reframe the problem

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### Process-based

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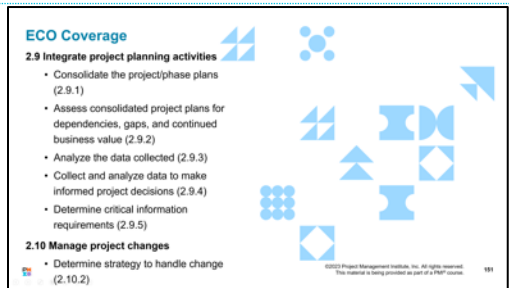


## How to Approach Complex Plans: Fail Fast and Self-Correct!

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## End of Topic 3H

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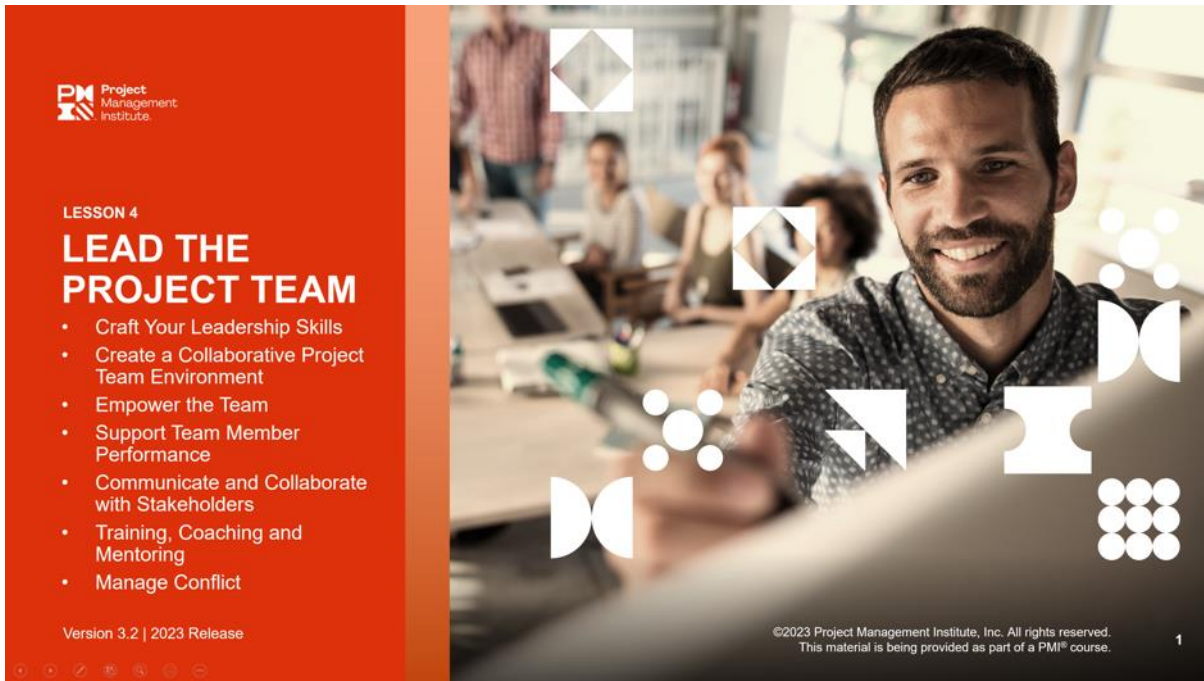


## End of Lesson 3

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## LESSON 4 | LEAD THE PROJECT TEAM

### Description

There are many ways to lead a team. No one approach is perfect for every situation. The appropriate leadership style depends on the situation, the project, the stakeholders, your skills, and many other factors. Project professionals must be astute in various leadership styles to apply and knowledgeable about tailoring leadership to the team and project needs.



## Learning Objectives

- Discuss the guidelines for developing leadership competencies and skills.
  - Address leadership styles, and the components of leading a successful team, either in person or virtually.
- Describe artifacts and the strategies for their use.
- Identify the characteristics and core functions of empowered teams.
- Explain strategies and forms of communication for collaborating in a project team environment.
- Learn the value of training, coaching and mentoring for a team.
- Explain the importance of conflict management.
- Discuss the causes and levels of conflict and their outcomes.



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## Topics

- A. Craft Your Leadership Skills
- B. Create a Collaborative Project Team Environment
- C. Empower the Team
- D. Support Team Member Performance
- E. Communicate and Collaborate with Stakeholders
- F. Training, Coaching and Mentoring
- G. Manage Conflict




# Lesson 4 Notes

## TOPIC 4A | CRAFT YOUR LEADERSHIP SKILLS

### ECO Coverage

- 1.2 Lead a team
  - Value servant leadership (e.g., relate the tenets of servant leadership to the team) (1.2.3)
  - Determine an appropriate leadership style (e.g., directive, collaborative) (1.2.4)
  - Distinguish various options to lead various team members and stakeholders (1.2.7)
- 1.11 Engage and support virtual teams
  - Implement options for virtual team member engagement (1.11.3)

 A red rectangular slide with a white circular icon containing a pencil and eraser. To the right of the icon, the text "Craft Your Leadership Skills" is written in white, with "TOPIC A" in smaller white text below it. At the bottom left, there is a small white logo. At the bottom right, there is small white text: "©2023 Project Management Institute, Inc. All rights reserved. This material is being provided as part of PMI's Project Management Professional (PMP)® exam preparation."	<h3>Topic 4A: Craft Your Leadership Skills</h3> <p>Teams are made up of individuals with different skill sets, backgrounds, experiences, and attitudes.</p> <p>Cohesive, collaborative teams typically are productive and effective. Leadership is a trait required of everyone on the project team. If you are the project manager or team lead, then you also need to lead on leadership!</p> <p>This topic corresponds to the “People” domain of the ECO and the “Power Skills” side of the PMI® Talent Triangle.</p>
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## Power Skills

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What are your strongest and weakest leadership skills?

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## Guidelines for Developing Inclusive Leadership Competencies

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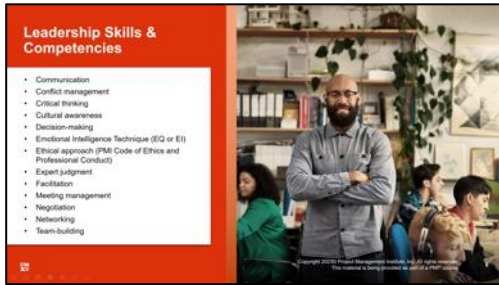
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## Leadership Skills and Competencies

- Communication
- Conflict management
- Critical thinking
- Cultural awareness
- Decision-making
- Emotional Intelligence Technique (EQ or EI)
- Ethical approach (PMI Code of Ethics and Professional Conduct)
- Expert judgment
- Facilitation
- Meeting management
- Negotiation
- Networking
- Team building

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### Interpersonal and Team Skills

- Active listening
- Communications styles assessment
- Emotional intelligence
- Influencing
- Motivation
- Nominal group technique
- Political awareness
- Transparency



## Interpersonal and Team Skills

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### Active listening

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### Communication styles assessment

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### Leadership Styles

#### Tailoring Considerations

- Experience with project type
- Team member maturity
- Organizational governance structures
- Distributed project teams

Style	Characteristic
Direct	Hierarchical, with project manager making all decisions
Consultative	Leader factors in opinions, but makes the decisions
Servant Leadership	Leader models desired behaviors
Consensual/ Collaborative	Team operates autonomously
Situational	Style changes to fit context and maturity/experience of team

## Leadership Styles: Tailoring Considerations

- Experience with project type
- Team member maturity
- Organizational governance structures
- Distributed project teams

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Fill in the chart about leadership style characteristics.



Leadership Style	Characteristics
Direct	
Consultative	
Servant Leadership	
Consensus/ collaborative	
Situational	



Leadership ≠ Management

**Leadership** - Guiding the team by using discussion and an exchange of ideas

**Management** - Directing actions using a prescribed set of behaviors

- Adapt leadership style to situations and stakeholders
- Be aware of individual and team aims and working relationships
- Use political awareness and emotional intelligence

Leadership ≠ Management

What are the differences between these concepts?

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Servant Leadership

- Facilitate rather than manage
- Provide coaching and training
- Remove work impediments
- Focus on accomplishments
- Encourage every team member to be a servant leader

Servant Leadership

Do you perform as a servant leader at work? How have others demonstrated servant leadership traits?

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*We have introduced servant leadership already, so you can use this opportunity to focus on specific leadership tasks associated with the role.*



### Adopt a Growth Mindset

- Let past experiences and processes provide guidance for, but not dictate, your actions
- Commit to continuously improve and innovate, to find new ideas and perspectives
- Discover the best approach through discussion and introspection
- Avoid complacency and blind acceptance

## Adopt a Growth Mindset

### Growth mindset

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### Team-Building

- Cohesion and solidarity help teams perform better.
- Good leadership facilitates bonding between project team members.
- Team-building activities build unity, trust, empathy and focus on the team over the individual. They can be:
  - Formal or informal
  - Brief or extended
  - Facilitated by yourself or a professional facilitator

Can you share an example of a positive team-building experience?

## Team Building

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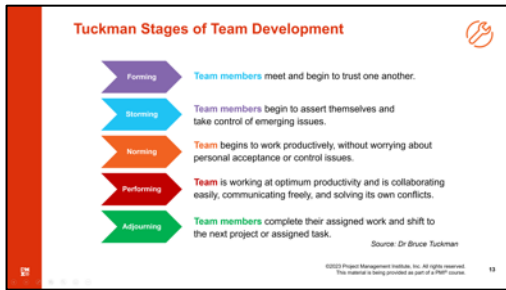
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## Tuckman's Stages of Team Development (Review)

### Forming

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### Storming

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### Norming

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### Performing

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### Adjourning

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Remember the Tuckman's Stages?  
Let's review them quickly!



Balance Team Tone with Sense of Urgency



**TONE**

- Use fluid communication and engagement
- Promote **positive interactions**

**URGENCY**

- Emphasize the project's vision and value
- Commit to and be accountable for delivering value
- Envision team as active participant in delivering the organization's strategic vision

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*How do you strike the balance between a positive team tone and fostering the appropriate sense of urgency?*

## Balance Team Tone with Sense of Urgency

Tone

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Urgency

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How can you create a balance?

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### Virtual Team Member Engagement

- Manage engagement by focusing on:
  - Team dynamics
  - Transparency
  - Accountability
  - Attention to effective communication
- Use and adapt videoconferencing tools
- Check for active participation, assess body language and tone
- Enable visibility of work and work status with tools (e.g., Kanban-style boards)



## Virtual Team Member Engagement

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### Virtual Team Best Practices

- Manage risk of "feeling isolated"
- Focus on shared commitments and team goals vs. individual accomplishments
- Instill a sense of shared commitment



## Virtual Team Member Best Practices

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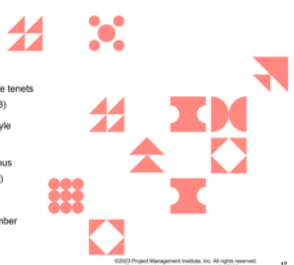
### ECO Coverage

#### 1.2 Lead a team

- Value servant leadership (e.g., relate the tenets of servant leadership to the team) (1.2.3)
- Determine an appropriate leadership style (e.g., directive, collaborative) (1.2.4)
- Distinguish various options to lead various team members and stakeholders (1.2.7)

#### 1.11 Engage and support virtual teams

- Implement options for virtual team member engagement (1.11.3)



## End of Topic 4A

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## TOPIC 4B | CREATE A COLLABORATIVE PROJECT TEAM ENVIRONMENT

### ECO Coverage

#### 2.12 Manage project artifacts

- Determine the requirements (what, when, where, who) for managing the project artifacts (2.12.1)
- Validate that the project information is kept up to date (i.e., version control) and accessible to all stakeholders (2.12.2)

	<h3>Topic 4B: Create a Collaborative Project Team Environment</h3> <p>We just discussed leading the people in your project. Now let's look at best practices for ensuring work can happen smoothly. This topic includes creating a structure for physical and virtual working, including workspace management, project artifact and document creation, and configuration management.</p>
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### Where and How the Team Works

- Colocation, if possible, is best!
- Factor in environment and location to team performance
- Foster meaningful interaction to support autonomy
- Respect agreed team working hours and practices (ground rules)

## Where and How the Team Works

Prioritize:

- Colocation
- Environment
- Meaningful interaction
- Ground rules

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### "Agile" Space for Hybrid Teams

Create a team space that encourages colocation, collaboration, communication, **transparency** and visibility

⚠️ Ensure private spaces for those who need to work in solitude.



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## "Agile" Space for Hybrid Teams

- Colocation
- Collaboration
- Communication
- Transparency
- Visibility

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Explain the importance of transparency/visibility:

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Work Information Management Systems

Project Management Information System (PMIS)

- Gather, integrate and share project data
- Ensure consistency in collection and reporting

Microsoft Project or similar

Artifacts Management Systems

Store and maintain project artifacts

- Microsoft SharePoint or Teams
- Google Drive

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## Work Information Management Systems

### Project management information systems (PMIS)

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### Artifact management systems

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Importance of Artifacts



Artifacts enable reconstruction of the history of the project and to benefit other projects.



Project teams create and maintain many artifacts during the life of the project.

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## Importance of Artifacts

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### Information Storage and Distribution Good Practices

- Select an accessible location
- Use information radiators to make work visible
- The storage and distribution system should match the complexity of the project
- Use cloud-based systems for larger projects, especially if team members are geographically distributed



## Information Storage and Distribution Good Practices

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### Standardize Artifacts What to Include

- A simple way to produce and control documents
- Standardized formats and templates
- A structured process for the review and approval of documents
- Version control and security
- Timely distribution of documents



## Standardize Artifacts: What to Include

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### Tailor Artifacts

These lists are typical, not exclusive or prescriptive.  
**Tailor** the artifact type and use to your project.

- Project management plan
- Project charter
- Change requests
- Scope baseline
- Schedule baseline
- Cost baseline
- Subsidiary project management plans

- Project management plan
- Product roadmap
- Task boards
- Experiments
- Product backlog
- Sprint backlog

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## Tailor Artifacts

### Predictive

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### Hybrid/Adaptive

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### Maintain Artifacts

#### Configuration management plan

- Project management plan component
- States how project information (and which items) will be recorded and updated
- Facilitates consistency of the product, service or result of the project and/or operability

#### Configuration management system

How a project manager tracks project artifacts and monitors, and controls changes to them

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## Maintain Artifacts

### Configuration management plan

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### Configuration management system

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Version Control

This is a subset of configuration management related to documents and digital record keeping.

For each update, include:

- A new **version number**
- A **date/time stamp**
- Name** of user who made the changes

⚠ Apply version control to all artifacts, especially important ones, like the project management plan.

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## Version Control

Definition and use:

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ECO Coverage

2.12 Manage project artifacts

- Determine the requirements (what, when, where, who) for managing the project artifacts (2.12.1)
- Validate that the project information is kept up to date (i.e., version control) and accessible to all stakeholders (2.12.2)

## End of Topic 4B

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## TOPIC 4C | EMPOWER THE TEAM

### ECO Coverage

- 1.2 Lead a team
  - Support diversity and inclusion (e.g., behavior types, thought process) (1.2.2)
  - Inspire, motivate, and influence team members/stakeholders (e.g., team contract, social contract, reward system) (1.2.5)
- 1.4 Empower team members and stakeholders
  - Determine and bestow level(s) of decision-making authority (1.4.4)



### Topic 4C: Empower the Team

The idea of empowerment is a critical part of the agile mindset. Predictive team environments can also benefit from empowered team members who can assist project managers in making decisions based on their expert judgment.

In all contexts, strive to create an environment where individual team members are empowered to contribute ideas.



### Empower Teams with EI and Fluid Communication

In 2016, "After years of analysing interviews and data from more than 100 teams, [Google researchers] found that the drivers of effective team performance are the group's average level of emotional intelligence and a high degree of communication between members."



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From "[Great Teams Are About Personalities, Not Just Skills](#)"

by Dave Winsborough and

Tomas Chamorro-Premuzic. Harvard Business Review, January 25, 2017.

Accessed online 12/2022.

## Empower Teams with EI and Fluid Communication

In 2016, "After years of analyzing interviews and data from more than 100 teams, [Google researchers] found that the drivers of effective team performance are the group's average level of emotional intelligence and a high degree of communication between members."

What are your thoughts about these findings, and how are they related to empowering a team?

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### Empowerment, Unity, Autonomy

- Empower teams to feel a sense of ownership of work, make decisions collaboratively and share responsibility
- Prioritize team unity over individual contributions
- Grant autonomy to teams to show trust, inspire and boost productivity

**Goal** - Team recognizes their power and influence. As an empowered, cohesive unit, they depend on each other to make decisions and solve problems to deliver desired value quickly



## Empowerment, Unity, Autonomy

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Goal:

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### Support Diversity, Equity & Inclusion (DE&I)

- Empower teams as a cohesive unit, but respect individuals
- Create an environment that acknowledges diversity in a positive way and builds mutual trust by:
  - Following organizational or other relevant standards for DE&I
  - Supporting trust- and morale-building initiatives
  - Fostering a collaborative culture
  - Acting and leading with empathy

## Support Diversity, Equality, and Inclusion (DE&I)

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Team DE&I development objectives include:

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*This topic follows from the DE&I Standards topic in Lesson 2. As with other leadership topics, we plan for and then support various aspects of a project or project team.*

### Create Psychological Safety and Embrace Diversity

Psychological safety is a psychosocial condition, required for high-performing project teams.

Team members should be comfortable being themselves at work.

Healthy work settings:

- Embrace **diversity**
- Are built on **trust** and **mutual respect**
- Ensure **ethical decision-making**

## Create Psychological Safety and Embrace Diversity

Psychological safety

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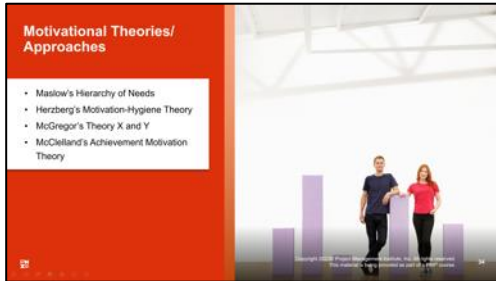
Healthy work settings include:

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## Motivational Theories/Approaches

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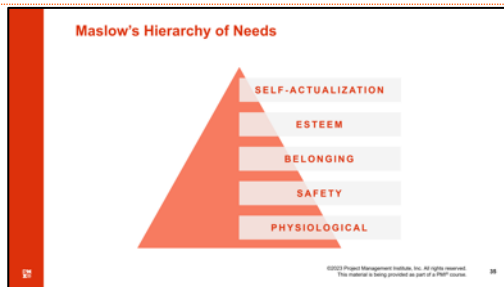
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How well do you know:

- Maslow's Hierarchy of Needs
- Herzberg's Motivation-Hygiene Theory
- McGregor's Theory X and Y
- McClelland's Achievement Motivation Theory



## Maslow's Hierarchy of Needs

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## Herzberg's Motivation-Hygiene Theory (aka Two-Factor Theory)

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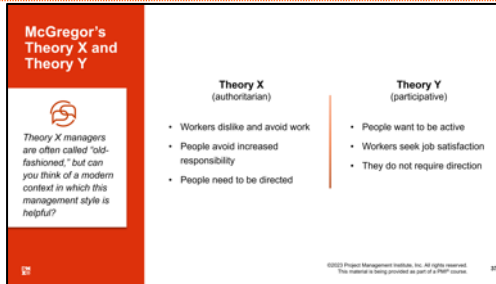
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## McGregor's Theory X and Theory Y

### Theory X

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### Theory Y

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### McClelland's Achievement Motivation Theory

An individual's needs are shaped by life experiences in three areas; one becomes dominant:

- Use this information to influence goal setting, feedback and motivation/reward systems
- Design or craft roles around team member strengths
- Identify need for balance to create T-shaped people and high-performing project teams

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## McClelland's Achievement Motivation Theory

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### Uphold Team Charter and Ground Rules

**CHECKLIST**

- Are the rules visible?
- Do any rules need updating because of changing circumstances?
- Are new team members inducted properly?
- Team goes through the "forming" stage after any change
- Has a ground rule been violated or broken?
- Ensure the appropriate response
- Remind about mutual agreement
- Coach team members
- Use servant leadership
- Save harsh disciplinary action for severe violations

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## Uphold Team Charter and Ground Rules

### Checklist:

- Visibility
- Updated rules because of changes
- New team member induction
- Ground rule violations



*Think of the ground rules as a means of creating empowerment and cohesion. The role of ground rules in managing conflict is explored in upcoming Topic 4G: Manage Conflict.*

How do the team charter and the ground rules help to empower teams?

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### Use Rewards and Recognition

#### REWARDS

- Tangible, consumable items
- For a specific outcome or achievement
- Use to motivate toward a specific outcome
- Never reward without recognition!

#### RECOGNITION

- Intangible, experiential event
- Acknowledge person's behavior rather than an outcome
- Use to increase recipient's feeling of appreciation
- Can be given without a reward

Be transparent and judicious when using rewards and recognition. Monitor for any negative effects resulting from misplaced competitiveness or animosity.

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## Use Rewards and Recognition

### Rewards

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### Recognition

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### Decision-Making

#### Empower the Team to Act

- Team charter identifies decision-making and conflict resolution criteria
- Teams establish their own norms or Way of Working (WoW) for making decisions and conflict resolution
- Teams always try to achieve **consensus**

## Decision-Making: Empower the Team to Act

### Consensus

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**Decision-Making:  
Opportunities to Empower the Team**


Can you think of other challenges that can be addressed by team decision-making?

**Activities**

- Clarify and prioritize requirements or user stories
- Split requirements into tasks
- Estimate effort

**Risks**

- Classification
- Response/action

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## Decision-Making: Opportunities to Empower the Team

Teams that actively participate in making decisions are empowered by the action.

Some opportunities to decide about:

- Activities

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- Risks

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- Anything else?

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## Decision-Making Methods

### Voting

Consensus-driven, based on data

### Multicriteria decision analysis

Data-driven

### Autocratic decision making

Leadership-driven, based on data

- Collective decision-making and assessment
- Determines several alternatives, with future actions as the expected outcome
- Use to generate, classify, and prioritize product requirements
- Method - Establish criteria in decision matrix – e.g. risk levels, uncertainty and valuation
- Uses a systematic, analytical approach
- Evaluate and rank many ideas

One team member decides for the group.

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## Decision-Making Methods

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Voting

Multicriteria  
decision  
analysis

Autocratic  
decision  
making



## Decision-Making Methods

### Voting

#### UNANIMITY

Everyone agrees on a single course of action. Useful in project teams with great cohesion.

Example: Delphi technique

#### MAJORITY

Decision reached with > 50% of group support

Create groups of an uneven number of participants to ensure decisions are made and avoid tie votes/draws!

#### PLURALITY

Decision reached with largest block in a group deciding, even if majority is not achieved. Use this method when more than two options are nominated.



#### Voting methods to reach consensus

- Fist of Five
- Planning poker
- Dot voting
- Roman voting (thumbs)
- Polling

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## Decision-Making Methods: Voting

### Voting methods:

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Unanimity

Majority

Plurality



### Display Task Accountability

Keep work and progress visible to demonstrate transparency of work completed.

- WBS dictionaries and work package descriptions document tasks and the assignees
- RACI charts display roles and responsibilities

Encourage team members to self-organize continuously in determining accountability standards.

## Display Task Accountability

Why do we need to do this?

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Predictive

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Hybrid/Adaptive

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### ECO Coverage

**1.2 Lead a team**

- Support diversity and inclusion (e.g., behavior types, thought process) (1.2.2)
- Inspire, motivate, and influence team members/stakeholders (e.g., team contract, social contract, reward system) (1.2.5)

**1.4 Empower team members and stakeholders**

- Determine and bestow level(s) of decision-making authority (1.4.4)

## End of Topic 4C

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## TOPIC 4D | SUPPORT TEAM MEMBER PERFORMANCE

### ECO Coverage

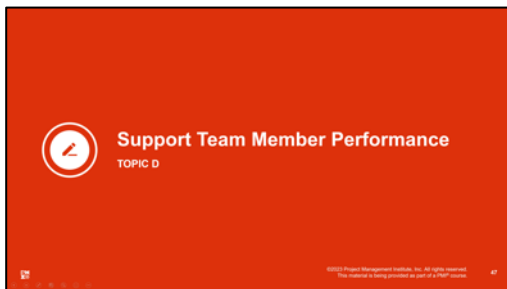
#### 1.3 Support team performance

- Appraise team member performance against key performance indicators (KPIs) (1.3.1)
- Support and recognize team member growth and development (1.3.2)
- Determine appropriate feedback approach (1.3.3)
- Verify performance improvements (1.3.4)

#### 1.14 Promote team performance through the application of emotional intelligence

- Assess behavior through the use of personality indicators (1.14.1)
- Analyze personality indicators and adjust to the emotional needs of key project (1.14.2)

### Topic 4D: Support Team Member Performance



Supported team members perform better and are motivated to do their best work. You'll need strategies to maintain support for individuals on the whole team. These are mainly focused on emotional intelligence and communication.



*Please note that though this topic title is very similar to the title of Lesson 5, this section is about supporting **individuals**.*



Manage and Lead

Management by Objectives

- Uses clear objectives to guide productivity and encourage aspiration
- Set objectives collaboratively with team members
- Create challenging, yet attainable, objectives
  - At the start of a project or phase
  - Throughout the project life cycle, as in an iteration planning session

Servant Leadership

Three steps:

1. Define vision
2. Align people to that vision
3. Motivate people to pursue the vision

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## Manage and Lead

### Management by Objectives

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### Servant Leadership – Three steps:

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### Assess Team Member Performance to...

- Identify strengths, weaknesses, aspirations and preferences
- Discover opportunities for improvement

- Use formal and informal assessment methods
- Conduct assessments when team members join and then monitor progress

- Self-organized agile teams in psychologically safe environments assess and regulate their own performance.
- The focus is the team, rather than individuals.

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## Assess Team Member Performance to...

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Predictive

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Adaptive

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### Performance Assessment Tasks

- Compare performance to goals
- Reclarify roles and responsibilities
- Deliver positive as well as negative feedback
- Discover unknown or unresolved issues
- Create and monitor individual training plans
- Establish future goals

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## Performance Assessment Tasks




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### Personality Indicators

Look Beyond Introvert / Extrovert

Commonly used Measurement Tools

- Big Five Personality Model (OCEAN)
- Myers-Briggs Type Indicator
- DISC

#### DO

- Use the exercise as an ice-breaker or team-building activity
- Use results as predictors, not absolutes
- Always seek permission and explain use

#### DON'T

- Make fixed assumptions or judgments based on results
- Share anyone's personal information without permission

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## Personality Indicators: Look Beyond Introvert/Extrovert

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### Commonly used tools

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DO:

DON'T:




Use Personality Research to Coach Team Members



(Optional)  
Using this list of psychological team roles, which types of project tasks or process roles would you associate them with?

Personality can affect:

- What role you have within the team
- How you interact with the rest of the team
- Whether your values (core beliefs) align with the team's

Psychological team roles:

- Results-oriented
- Relationship-focused
- Innovative and disruptive thinkers
- Process and rule-followers
- Pragmatic

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## Use Personality Research to Coach Team Members

Personality can affect

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Psychological team roles

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Using the list of psychological team roles, which types of project tasks or process roles would you associate them with?

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## Emotional Intelligence - 5 components

### Emotional self-awareness

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### Self-regulation

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### Motivation

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### Empathy (discussed in more depth in next slides)

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### Social Skills

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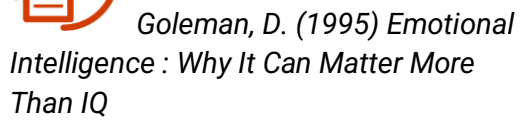


The diagram illustrates the components of Emotional Intelligence, organized into a 2x2 matrix. The vertical axis represents the process (Recognition vs. Regulation), and the horizontal axis represents the focus (Self vs. Social).

	SELF	SOCIAL
RECOGNITION	<b>Self-Awareness</b> Emotional Self-Awareness Accurate Self-Assessment Self-Confidence	<b>Social Awareness</b> Empathy Organizational Awareness Service Orientation
REGULATION	<b>Self-Management</b> Self-Control Transparency Adaptability Drive to Achieve Initiative	<b>Relationship Management</b> Inspirational Leadership Developing Others Influence Change Catalyst Conflict Management Building Bonds Teamwork & Collaboration

Arrows indicate the flow of influence: a blue arrow from Self-Awareness to Social Awareness, a green arrow from Social Awareness to Relationship Management, a red arrow from Relationship Management to Self-Management, and a purple arrow from Self-Management back to Self-Awareness, forming a cycle.

Source: Daniel Goleman, *Emotional Intelligence*, p. 30 (original material).  
 This material is being provided as self-paced e-learning material.

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### Empathy

Provides a foundation for understanding the motivations of other people.

Empathetic traits that make individuals more able to contribute to collaborative, high-performing teams:

<b>Inward (helps individuals)</b> <ul style="list-style-type: none"> <li>• Understanding of others</li> <li>• Service orientation</li> </ul>	<b>Outward (helps teams)</b> <ul style="list-style-type: none"> <li>• Develop others</li> <li>• Leverage diversity</li> <li>• Have political awareness</li> </ul>
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## Empathy

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### Inward

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### Outward

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### Social Skills

High-performing team members are adept at:

- Communicating
- Building bonds
- Collaboration and cooperation
- Catalyzing change
- Managing conflict
- Influencing
- Leadership

## Social Skills

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## Motivation Elements



### Achievement/Drive

- Set tough goals, take chances
- Strive for success
- Discover how to upskill
- Minimize uncertainty



### Commitment

- Make decisions based on team core principles
- Realize benefits of holistic participation
- Sacrifice to fulfill company goal
- Search for opportunities to achieve team mission



### Initiative

- Work hard toward goals
- Inspire others through extraordinary feats
- Seize opportunities



### Optimism

- Hope to succeed; don't fear failure
- Perceive reversals as under your control
- Work toward goals regardless of barriers

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## Motivation Elements

### Achievement/drive

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### Commitment

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### Initiative

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### Optimism

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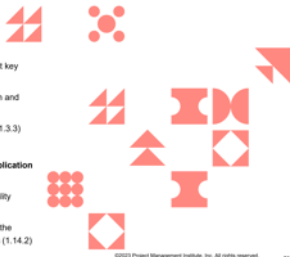
## ECO Coverage

### 1.3 Support team performance

- Appraise team member performance against key performance indicators (KPIs) (1.3.1)
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- Verify performance improvements (1.3.4)

### 1.14 Promote team performance through the application of emotional intelligence

- Assess behavior through the use of personality indicators (1.14.1)
- Analyze personality indicators and adjust to the emotional needs of key project stakeholders (1.14.2)



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## End of Topic 4D

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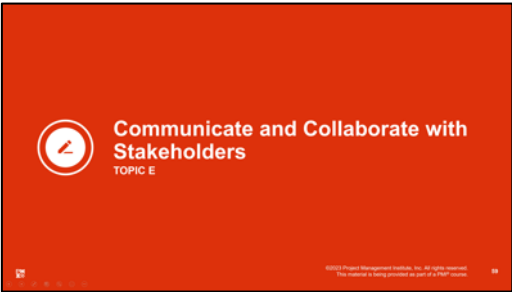
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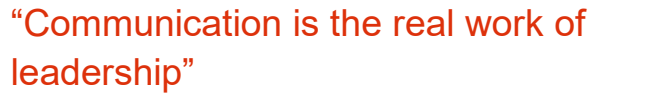
# TOPIC 4E | COMMUNICATE AND COLLABORATE WITH STAKEHOLDERS

## ECO Coverage

- 2.2 Manage communications
  - Communicate project information and updates effectively (2.2.3)
  - Confirm communication is understood and feedback is received (2.2.4)
- 1.2 Lead a team
  - Analyze team members' and stakeholders' influence (1.2.6)
- 2.4 Engage stakeholders
  - Engage stakeholders by category (2.4.3)
- 1.9 Collaborate with stakeholders
  - Optimize alignment between stakeholder needs, expectations, and project objectives (1.9.2)
  - Build trust and influence to accomplish project objectives (1.9.3)
- 3.2 Evaluate and deliver project benefits and value
  - Apprise stakeholders of value gained by the project (3.2.5)

 A red rectangular slide thumbnail with a white circular icon containing a pencil and eraser. To the right of the icon, the text reads "Communicate and Collaborate with Stakeholders" in white, with "TOPIC E" in smaller white text below it. At the bottom left, there is a small white logo. At the bottom right, there is small white text: "© 2023 Project Management Institute, Inc. All rights reserved. This material is being provided for your personal use only."	<h3>Topic 4E: Communicate and Collaborate with Stakeholders</h3> <p>Information, relationships, progress — everything depends on successful communication. We discussed how to plan for it in lesson 2, topic A: “Identify and Engage Stakeholders.”</p> <p>Now we move into execution and to explore effective communication and collaboration with stakeholders.</p>
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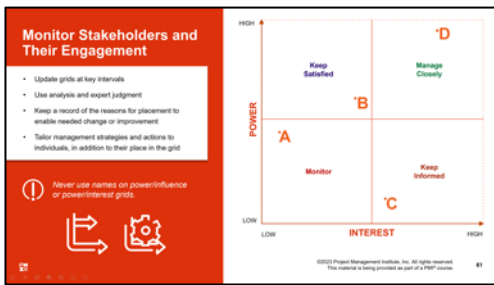


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*Collaboration with stakeholders looks different in each project, but let's look at some general guidelines.*







## Monitor Stakeholders and Their Engagement

Review continuously and update the matrix.

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## Communications Management Plan



- Identifies team members and stakeholders as:
  - Senders
  - Receivers
  - Authorizing person (confidential information)
- Lists stakeholders' communication requirements, including:
  - Type of information
  - Reason for communication
  - Language, format, content and level of detail
  - Time frame and frequency
  - Whether receipt/ acknowledgment or response is required
- Processes/guidance/templates for:
  - Escalation
  - Updating/refining the plan
  - Running project status meetings, project team meetings, sending emails, using website and PMIS
- Project information:
  - Communications methods/technologies to use
  - Allocated resources (time and budget)
  - Glossary
  - Flow charts, workflows, list of reports, meeting plans
  - Constraints

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## Communications Management Plan

### Components:

- Team member and stakeholder identification
- Stakeholder communication requirements
- Processes/guidance/templates
- Project information

Team member and stakeholder ID

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Stakeholder communication requirements

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Processes/guidance/templates

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Project information:

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## Managing Project Communications: Communications Matrix



Abbreviation of communications management plan that includes:

- Identified team members and stakeholders as:
  - Senders
  - Receivers
  - Authorizing person (confidential information)
- Stakeholder communication requirements:
  - Type of information
  - Reason for communication
  - Language, format, content and level of detail
  - Time frame and frequency
  - Whether receipt/ acknowledgment or response is required
- Processes/guidance/templates for **escalation**
- Project information - **Communications methods/technologies** to use

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## Managing Project Communications: Communications Matrix

This is a shorter form of a communications management plan.

Format can be a spreadsheet, whiteboard, other

Contents:

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### Communication: Two Ways

#### Active Listening

- Enables collaboration
- Requires listener to provide feedback about what they heard by:
  - Re-stating
  - Paraphrasing
- Using body language such as nodding the head



- Confirms understanding and builds trust
- Consider lack of feedback as an implicit acceptance of the message by the receiver.
- Communication failures are threats to projects, so discuss communications issues openly with team members directly, during team retrospectives. In the case of key stakeholders, you might need to escalate as appropriate.

#### Effective feedback is:

- Clear, specific and offered in a timely manner
- Objective and critical
- Positive if received and understood as objective
- Negative if misunderstood or there is a lack of trust and psychological safety.

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## Communications: Two Ways

### Active listening

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### Effective feedback is:

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### Reports and Formal Communication



Can you think of some  
examples?



Formal reporting at appropriate milestones is a proven way of maintaining continuous communication with stakeholders.

It's also needed to obtain "sign-off" or approval on work.

Recipients of reports and the desired frequency are noted on the **stakeholder engagement plan** and the **communications management plan**.

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## Reports and Formal Communication

### Can you think of some examples?

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How to Collaborate

- Optimize understanding of aims and expectations through open dialogue and meaningful communication
- Engage continuously
- Accept that engagement levels may fluctuate
- Keep discussions transparent
- Ensure stakeholders are knowledgeable and expectations are set
- Leverage communication and interpersonal skills, feedback and meeting management
- Maximize the feedback loop – gain meaningful insights
- Use effective tools – e.g., shared whiteboards

## How to Collaborate

### Guidelines for collaboration

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Use Information Radiators  
Keep Information Visible

- Kanban boards
- White boards
- Wikis
- Fishbowl windows

Information radiators enable open communication and collaboration.

They can be electronic or physical, or both.

Main benefit is accountability — promoting responsibility among team members

Secondary benefit is innovation — to provoke conversation and collaboration when stakeholders visit the workspace

## Use Information Radiators: Keep Information Visible

### Formats and benefits for collaboration.

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Watch a video and gain further information on information radiators in

Lesson 5!



Collaboration Activities

- Daily stand-up meetings
- Collocated or face-to-face working
- Scheduled sessions — e.g., milestone reviews, backlog refinement sessions, project update meetings
- Pairing or coaching, as in knowledge transfer
- Negotiations

Collaboration Activities

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Communicate and Collaborate to Negotiate

- Think of **negotiations as conversations** with internal and external parties toward reaching agreements.
- Use **effective communication methods** to ensure collaboration with the other party is aimed at reaching consensus.
- Keep negotiations **positive** to increase the likelihood of success.

Communicate and Collaborate to Negotiate

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Meetings

Everyone's time is **valuable**. Run and participate in meetings **efficiently**.

- Be **organized!** Provide a clear agenda with purpose and desired outcomes
- Timebox** discussions
- Practice **active listening** and **feedback**
- Facilitate **collaboration**

Meetings

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## Stakeholder Engagement Assessment Matrix (SEAM)

Explain how to use this tool to help collaboration and communication with stakeholders:

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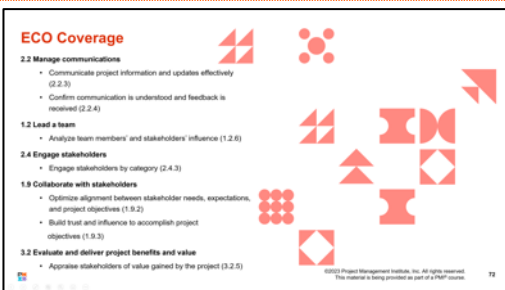
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## End of Topic 4E

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## TOPIC 4F | TRAINING, COACHING, AND MENTORING

### ECO Coverage

#### 1.6 Build a team

- Appraise stakeholder skills (1.6.1)

#### 1.5 Ensure team members/stakeholders are adequately trained

- Determine required competencies and elements of training (1.5.1)
- Determine training options on training needs (1.5.2)
- Allocate resources for training (1.5.3)
- Measure training outcomes (1.5.4)

#### 1.13 Mentor relevant stakeholders

- Allocate the time for coaching mentoring (stakeholders) (1.13.1)
- Recognize and act on coaching mentoring opportunities (1.13.2)

	<h3>Topic 4F: Training, Coaching and Mentoring</h3> <p>Let's move from collaboration to training with team members and stakeholders. This is a different leadership topic, but still within the realm of "working together."</p>
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Foster a Knowledge-Sharing Culture

Training, coaching, and mentoring are all forms of knowledge-sharing that advance projects and organizations.

- Team members learn from **and** teach others
- It's **for everyone**, including stakeholders, team members, and customers as part of project work and **continuous improvement** efforts
- Some **project roles** are dedicated to knowledge-sharing — e.g., **agile coaches** or scrum masters
- It's essential in **product delivery** and **transition planning**!

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## Foster a Knowledge-Sharing Culture

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## Agile coach / scrum master role

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Training, Coaching and Mentoring Descriptions

Training	Learn skills for use in the present	<ul style="list-style-type: none"> <li>Individually or as a group</li> <li>aka "upskilling"</li> <li>On any topic</li> </ul>
Coaching	Learn how to apply new skills or improve existing ones	<ul style="list-style-type: none"> <li>Individually or as a group</li> <li>Puts learning into practice</li> </ul>
Mentoring	Development of personal and professional growth through long-term professional relationships.	<ul style="list-style-type: none"> <li>Between a novice and a more experienced person</li> <li>Internal or external to projects or organizations</li> </ul>

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## Training, Coaching and Mentoring: Descriptions

### Descriptions and uses of each

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### How to Acquire Required Competencies

- Discover current skill sets and competencies
- Identify what's desired
- Take action!
  - Meet unique needs — e.g., topics, depth, schedule, format
  - Coach on the customer's business, culture, desired outcomes, and project context
  - Encourage mentorships

Use and update the SEAM to facilitate easier collaboration.

## How to Acquire Required Competencies

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### Plan for Training, Coaching and Mentoring

- Perform a **gap analysis** to identify required knowledge, skills, or attributes.
- Plan for a suitable **diversity of training and coaching offerings**.
  - Soft skills
  - Technical skills
  - Part of team-building or fun/informal activity
- Schedule training** close to the time of solution implementation
- Consider **upskilling or certification** for team members
- Encourage valued stakeholders to become mentors

## Plan for Training, Coaching and Mentoring

Describe a well-rounded plan for training, coaching and mentoring:

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## Know the Value of Training, Coaching and Mentoring

Treat knowledge as an asset!

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## Training, Coaching and Mentoring Discussion

- Have you ever had a valuable trainer, coach, or mentor?
- Describe why they were effective.
- Would people think you are a valuable trainer, coach, or mentor? Why?

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## Elements of Training

Tailor training options to the team:

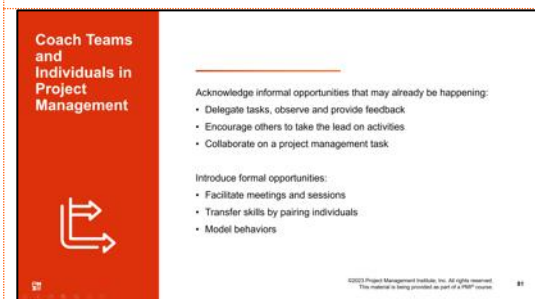
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## Coach Teams and Individuals in Project Management

Explain the value of sharing project management with others. Which types of knowledge should be shared?

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## Coach Groups and Individuals

Explore this diagram about coaching strategies in adaptive and hybrid teams! Note the two levels of coaching: individual and team coaching.

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### Self-Organizing Teams Collaborate and Learn

- Encourage **self-organization** and initiative in daily work life
- Coach individuals on **how** to contribute to other project roles
- Coach an individual with **tacit knowledge**
- Use **servant leadership**
- Use **job shadowing, coaching** or **mentoring** during transitions to transfer knowledge and skills from project team to organization

## Self-Organizing Teams Collaborate and Learn

Tacit knowledge

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### Measure Training Outcomes

Measurement of training includes noting improvements with:

- Post-training performance assessments
- Observation of knowledge or skill improvement
- Certifications – badges, letter from awarding body
- Discuss and share training outcomes in team retrospectives

Augment training through coaching to **convert learning into active use of knowledge**. Try pairing team members in knowledge-sharing relationships.

⚠️ If desired outcomes are not achieved, record this in the lessons learned and try to find out why.

## Measuring Training Outcomes

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### Maintain Mentorships

- Longer-term partnerships that enable professional growth
- Job-shadowing engagements enable transfer of explicit and tacit knowledge
- Tailor to context and desired engagement — e.g., some organizations use mentorships to train project managers and may use reporting to guide development, while others use an informal approach

## Maintain Mentorships

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Optional further reading:  
*“Mentoring: a key competency for program and project professionals”* URL:

<https://www.PMI.org/learning/library/mentoring-key-competency-program-project-professionals-6264>

### ECO Coverage

**1.6 Build a team**

- Appraise stakeholder skills (1.6.1)

**1.5 Ensure team members/stakeholders are adequately trained**

- Determine required competencies and elements of training (1.5.1)
- Determine training options on training needs (1.5.2)
- Allocate resources for training (1.5.3)
- Measure training outcomes (1.5.4)

**1.13 Mentor relevant stakeholders**

- Allocate the time for coaching mentoring (stakeholders) (1.13.1)
- Recognize and act on coaching mentoring opportunities (1.13.2)

## End of Topic 4F

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## TOPIC 4G | MANAGE CONFLICT

### ECO Coverage

- 1.1 Manage conflict
  - Interpret the source and stage of the conflict (1.1.1)
  - Analyze the context for the conflict (1.1.2)
  - Evaluate/recommend/reconcile the appropriate conflict resolution solution (1.1.3)
- 1.12 Define team ground rules
  - Discuss and rectify ground rule violations (1.12.3)
- 1.10 Build shared understanding
  - Investigate potential misunderstandings (1.10.4)
  - Break down situations to identify the root cause of a misunderstanding (1.10.1)

	<h3>Topic 4G: Manage Conflict</h3> <p>An extremely important part of project leadership is maintaining a peaceful, productive working environment in which conflict is managed. In this section, we learn how to deal with conflicts, so that when they arise or escalate, you can attend to them.</p>
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Why Conflict Management Matters


**Ineffective conflict management leads to:**

- Destructive behavior
- Animosity
- Poor performance
- Reduced productivity

**Effective conflict management leads to:**

- Improved understanding
- Better performance
- Higher productivity

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## Why Conflict Management Matters

Ineffective conflict management leads to:

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Effective conflict management leads to:

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Conflict Management Roles


All team members and stakeholders are responsible for managing conflict. Project managers **influence the direction and handling of conflict** through interpersonal skills and servant leadership.



The team is empowered to resolve conflicts; the team lead can facilitate resolution.

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## Conflict Management: Roles

Is conflict management different in predictive and adaptive teams? How so? Who does what?

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### Causes of Conflict

#### Context

- Competition
- Differences in objectives, values, and perceptions — this can be ideological
- Disagreements about role requirements, work activities and individual approaches
- Communication breakdowns
- Projects are unique and team members not worked together before

## Causes of Conflict: Context

Describe the common causes of conflict and contexts

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### Conflict as Part of Team Culture

In a **psychologically safe** work environment:

- View disruption and innovation as connected
- Encourage exchanges and disagreement
- Prevent escalation to conflict

## Conflict as Part of Team Culture

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[Optional further reading on psychological safety on PMI.org.](#)

### How to Handle Conflict

- Use preferred ways of managing conflict from the **team charter** and **ground rules**. Provide guidance and resources to help the team.
- Agile teams include conflict management strategies in their way of working (WoW) and are supported by a culture of trust.
- Focus on the issues and not on individuals.

## How to Handle Conflict

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*Leas, Speed B. Leadership and Conflict. Nashville: Abingdon Press, 1983.*

## Use Leas' Levels of Conflict

- **Level 1 - Problem to solve:** Differences are identified, then shared and discussed among members. This level is a problem or task-oriented conflict, not a person or relationship-oriented conflict.
- **Level 2 - Disagreement:** Personalities and issues mix; therefore, problems cannot be identified. At this stage, people begin to distrust one another and make problems personal.
- **Level 3 - Contest:** Win/lose dynamic emerges, followed by taking sides, distorted communication, personal attacks. Conflict objectives shift from focus on self-protection to winning the argument. People feel threatened or invigorated and ready to fight.
- **Level 4 - Fight/Flight:** Conflict participants may shift from winning to now trying to hurt or get rid of their opponents. Intervention is required.
- **Level 5 - Intractable situation/War:** People are now incapable of having a clear understanding of issues. Efforts to destroy others' reputation, positions, or well-being are common. This eventually ruins the relationship.



Use Interpersonal Skills to Manage Conflict

Emotional Intelligence

Influencing

Leadership

Decision-Making

Active Listening

Use empathy to understand and diffuse situations

Persuade parties to reconsider or change their tone, approach, or mindset

Steer others in a more positive direction

Offer a solution to move the situation forward

Listen for personalized, accusing language and bitter or caustic tone, defensive or aggressive physical postures

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# Use Interpersonal Skills to Manage Conflict

Emotional Intelligence	
Influencing	
Leadership	
Decision-Making	
Active Listening	



### Conflict Management Approaches

Smooth/ Accommodate	<ul style="list-style-type: none"> <li>Emphasize areas of agreement</li> <li>Concede position to maintain harmony and relationships</li> </ul>
Withdraw/ Avoid	<ul style="list-style-type: none"> <li>Retreat from the situation</li> <li>Postpone the issue</li> </ul>
Compromise/ Reconcile	<ul style="list-style-type: none"> <li>Incorporate multiple viewpoints</li> <li>Enable cooperative attitudes/open dialogue to reach consensus and commitment</li> </ul>
Force/Direct	<ul style="list-style-type: none"> <li>Pursue your viewpoint at the expense of others</li> <li>Offer only win/lose solutions</li> </ul>
Collaborate/ Problem Solve	<ul style="list-style-type: none"> <li>Incorporate several viewpoints and insights from varying perspectives</li> <li>Requires cooperative attitude and open dialogue</li> <li>Search for solutions that typically lead to consensus and commitment</li> </ul>

Root cause analysis - 5 Whys Method

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## Conflict Management Approaches

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Smooth/ Accommodate	
Withdraw/ Avoid	
Compromise/ Reconcile	
Force/ Direct	
Collaborate/ Problem Solve	



ECO Coverage

1.1 Manage conflict

- Interpret the source and stage of the conflict (1.1.1)
- Analyze the context for the conflict (1.1.2)
- Evaluate/recommend/reconcile the appropriate conflict resolution solution (1.1.3)

1.12 Define team ground rules

- Discuss and rectify ground rule violations (1.12.3)

1.10 Build shared understanding

- Investigate potential misunderstandings (1.10.4)
- Break down situations to identify the root cause of a misunderstanding (1.10.1)

## End of Topic 4G

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End of Lesson 4

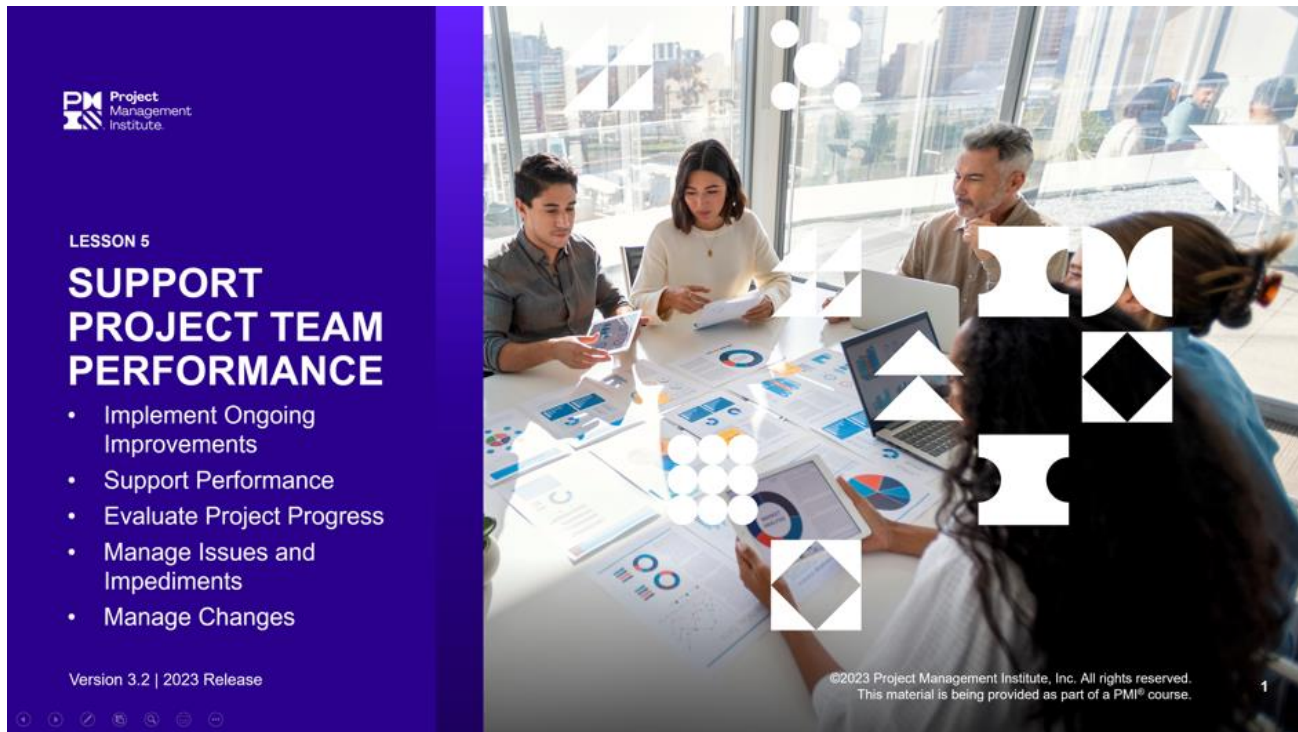
## End of Lesson 4

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## Lesson 5: Support Project Team Performance

### Description

This lesson explores concepts and tasks related to ensuring the team is doing its best work and stays on track to achieving successful project outcomes.

We explore both the “People” and “Process” domains of the ECO in this lesson.



## Learning Objectives

- Explain the various methods for implementing improvement.
- Explain the various methods for performance measurement.
- Compare these methods with a focus on communication and accountability.
- Identify the methods for implementing a project and the issues and impediments that arise during a project.
- Describe the methods for implementing changes during a project.



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## Topics

- A. Implement ongoing improvements
- B. Support performance
- C. Evaluate project progress
- D. Manage project issues and impediments
- E. Manage project changes





# Lesson Notes

## TOPIC 5A | IMPLEMENT ONGOING IMPROVEMENTS

### Topics Covered

#### Continuous Improvement (CI)

- Plan continuous improvement methods, procedures, and tools
- Assess CI framework
- Plan CI methods, procedures, tools
- Recommend/Execute CI steps

 A blue presentation slide with a white circular icon containing a stylized 'Z' or '2'. To the right of the icon, the text reads 'Implement Ongoing Improvements' and 'TOPIC A' below it. At the bottom, there is small copyright text: '©2023 Project Management Institute, Inc. All rights reserved. This material is being presented as part of a PMI course.'	<h3>Topic 5A: Implement Ongoing Improvements</h3> <p>This lesson addresses the importance of continuous improvement (CI) methods to project practitioners and organizations.</p>
 <p><i>Continuous improvement is a foundation of agile practices and best/good practices in organizations. Even though CI does not appear on the ECO, it is an essential part of the project manager role.</i></p>	



Continuous Improvement (CI)

- An ongoing effort to improve products, services or processes through small, incremental improvements or large breakthroughs
- A business strategy developed at the organizational level for projects to adopt and use
- Typically implemented by an organization's PMO and/or a "structured learning" approach or CI framework such as Agile or Six Sigma

KAIZEN

改善

KAI= Change ZEN=Good

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## Continuous Improvement (CI)

### Definition and description

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### What is 'kaizen'?

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Kaizen

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## Kaizen Video

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A look at the approaches that are widely credited as the beginning of the CI knowledge area.

Duration: 1m 37s

You can find this video—and all the others—in the LO CHOICE screen.



### Assess Current CI Methods

How well are the team and organization equipped for CI?

- Is the **lessons learned register** up to date? Is the team having regular **retrospectives**? Are team members **Lean Six Sigma** or certified in an **agile** method?
- Do they know about **Kaizen**, **Lean**, **Crystal Methods** or **Capability Maturity Model Integration (CMMI)**?
- Also check the **process improvement plan** and the **project management plan**!

⚠ Use the **risk register** to assess current CI measures. It includes how the team is prepared to act to address threats to project quality, so it can be a helpful way of assessing current CI measures.

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Assess Current CI Methods

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Lean Six Sigma

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Others?

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### Conduct Retrospectives

Review and Improve Methods



- Prepare topics for inspiration
- On a board, make two columns
- Ask attendees to add items to these lists
- Allow each participant to identify the reason for the improvement
- Decide common items that need improvement and mark them
- Narrow the list to improvement areas that will bring value in the next sprint
- Get team consensus on the plan improvement
- Update these tasks on the backlog after a discussion with the product owner
- Implement changes

Went Well	Need to Improve
On-time completion	Retrospective method Keep workspace tidy

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## Conduct Retrospectives: Review and Improve Methods

How to conduct a retrospective:

- Prepare topics for inspiration
- On a board, make two columns: “What Went Well” and “What Could Be Improved”
- Ask attendees to add items to these lists
- Allow each participant to identify the reason for the improvement
- Decide common items that need improvement and mark them
- Narrow the list to those improvement areas that will bring value in the next sprint
- Get team consensus on the plan improvement
- Update these tasks on the backlog after a discussion with the product owner
- Implement changes

What could you be doing better?

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### Improve Your Improvement Methods



In addition to using the **lessons learned register** and **retrospectives** properly, try:

**Experiments**

- Use **A/B testing** and team **feedback** to identify improvements
- **Experiments** provide a way to improve team efficiency and effectiveness
- Apply controls — do them one at a time — to isolate the results

**Pareto chart, or the 80/20 rule**

- Directs efforts where they can make the biggest impact
- Takes a big problem and breaks it down into smaller pieces

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## Improve Your Improvement Methods

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### A/B testing

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### Pareto chart

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### 80/20 rule


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### Update Processes and Standards



Use what you learned from successful experimentation to fashion and recommend CI steps

Can lessons learned at the project level apply to the organization's continuous improvement process?

If so, escalate these lessons as an opportunity for adoption at the organizational level

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## Update Processes and Standards

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Interactive/Discussion

What are improvement procedures in your organization?

What methods do you use?

## Continuous Improvement Discussion

What are improvement procedures in your organization?

What methods do you use?

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Lead With an Improvement Mindset

- Educate yourself
- Encourage a "fail fast" mindset
- Identify material improvements, training, processes or equipment
- Measure the effect of any change
- Then repeat!

## Lead with an Improvement Mindset

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Topics Covered

**Continuous Improvement**

- Plan continuous improvement methods, procedures and tools
- Assess CI framework
- Plan CI methods, procedures, tools
- Recommend/Execute CI steps

## End of Topic 5A

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## TOPIC 5B | SUPPORT PERFORMANCE


### ECO Coverage

- 2.2 Manage communications
  - Communicate project information and updates effectively (2.2.3)
  - Confirm communication is understood and feedback is received (2.2.4)
- 1.4 Empower team members and stakeholders
  - Support team task accountability (1.4.2)
  - Evaluate demonstration of task accountability (1.4.3)
- 1.6 Build a team
  - Continuously assess and refresh team skills to meet project needs (1.6.3)
  - Maintain team and knowledge transfer (1.6.4)
- 2.11 Manage project artifacts
  - Continually assess the effectiveness of the management of the project artifacts (2.12.3)
- 2.13 Determine appropriate project methodology/methods and practices
  - Use iterative, incremental practices throughout the project life cycle (e.g., lessons learned, key stakeholder engagement, risk) (2.13.4)

 A blue rectangular graphic with a white circular icon containing a pencil. To the right of the icon, the text "Support Performance" is written in white, with "TOPIC B" in smaller white text below it. At the bottom left, there is a small white icon of a person. At the bottom right, there is small white text: "©2023 Project Management Institute, Inc. All rights reserved. This material is being provided as part of a PMI® course." and the number "19".	<h3>Topic 5B: Support Performance</h3> <p>Supported teams perform better and are motivated to do their best work.</p> <p>This lesson explores good practices for ensuring team cohesion during execution of project work.</p>
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Project Team Leadership Objectives



Communicate (and re-communicate) the project's objectives

Ensure fluid knowledge-sharing, a continued healthy dynamic on the team, welcome new team members, realign the team.

Focus the team on delivering value

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## Project Team Leadership Objectives

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Manage with Objectives, Tolerances, Thresholds

Use clear and effective communication with clear **objectives** throughout the life cycle for a more productive and driven team.

Know the **thresholds** and **tolerance** levels that enable you to effectively manage a variation without needing to escalate.



Applies to:

- Budget
- Schedule
- Quality
- Nonfunctional requirements

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## Manage with Objectives, Tolerances, Thresholds

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### The Project Manager's Role Centralized Model



- Ensures alignment of due dates — project deliverables, project life cycle and benefits realization plan
- Provides a project management plan
- Ensures creation and use of appropriate knowledge to/from the project
- Manages project performance and changes to project activities
- Makes integrated decisions about key changes that impact the project
- Measures and monitors progress, and takes appropriate action
- Collects, analyzes and communicates project information to relevant stakeholders
- Ensures completion of all project work and formally closes each phase, contract and the project as a whole
- Manages phase transitions when necessary

These tasks cannot be delegated.

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## The Project Manager's Role: Centralized Model



### Predictive

- Ensures alignment of due dates — project deliverables, project life cycle and benefits realization plan
- Provides a project management plan
- Ensures creation and use of appropriate knowledge to/from the project
- Manages project performance and changes to project activities
- Makes integrated decisions about key changes that impact the project
- Measures and monitors progress, and takes appropriate action
- Collects, analyzes, and communicates project information to relevant stakeholders
- Ensures completion of all project work and formally closes each phase, contract, and the project as a whole
- Manages phase transitions when necessary

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### Team Roles and Responsibilities to Support Performance Review Exercise

**PROJECT MANAGER**  
ANG FEN  
In this hybrid project, the \_\_\_\_\_ oversees project management plan integration, but delegates control of detailed product planning and delivery to the \_\_\_\_\_.

**TEAM**  
S.S.S.S.  
The \_\_\_\_\_ focuses on building a cross-functional team, a collaborative decision-making environment and ensuring the team can respond to changes.





**SCRUM MASTER/  
AGILE COACH**  
GREER  
The process role of \_\_\_\_\_ helps the team to understand the agile mindset and use scrum processes. To develop the SLC product, the \_\_\_\_\_ is the local domain expert that plans how to do the work and the \_\_\_\_\_ looks after value creation.

**PRODUCT OWNER**  
HELEN

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Fill in the blanks using the role labels at left.

 ANG FEN	<b>PROJECT MANAGER</b>
 TEAM	<b>TEAM</b>
 GREER	<b>SCRUM MASTER/ AGILE COACH</b>
 HELEN	<b>PRODUCT OWNER</b>

## Teams Roles and Responsibilities to Support Performance: Review Exercise

In this hybrid project, the \_\_\_\_\_ oversees project management plan integration, but delegates control of detailed product planning and delivery to the \_\_\_\_\_.

The \_\_\_\_\_ focuses on building a cross-functional team, a collaborative decision-making environment and ensuring the team can respond to changes.

The process role of \_\_\_\_\_ helps the team to understand the agile mindset and use scrum processes.


To develop the SLC product, the \_\_\_\_\_ is the local domain expert that plans how to do the work and the \_\_\_\_\_ looks after value creation.

Answers are on the next page.



Optimize Communication

- Use **retrospectives** purposefully — discuss how to improve ways of working
- Communicate in both group and face-to-face settings — especially important for remote or virtual teams
- Make communication positive and regular with **internal** and **external** team members and stakeholders
- Use technology and tools; get **feedback** about them and tailor for optimization


Where did the team record expectations about communication?

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## Optimize Communication

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### Answers to quiz

In this hybrid project, the project manager oversees project management plan integration, but delegates control of detailed product planning and delivery to the team.

The project manager/agile coach / scrum master focuses on building a cross-functional team, a collaborative decision-making environment and ensuring the team can respond to changes.

The process role of agile coach / scrum master helps the team to understand the agile mindset and use scrum processes.

To develop the SLC product, the team is the local domain expert that plans how to do the work and the product owner looks after value creation.



### Use Feedback to Support High Performance

- Feedback is crucial for any team, using any method, in any environment
- Communicate in detail about technical and "soft" performance aspects
- Use appropriate methods — e.g., public or private, individual or group, written or verbal
- Give feedback in a timely manner
- Request feedback regularly, as and when needed



## Use Feedback to Support High Performance

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### Support Team Task Accountability

- Encourage team members to self-organize in determining:
- What work needs to be done
  - How to perform the work
  - Who should perform it
- Use kanban boards to promote visibility and collaboration.
- Agile teams commit to performing work listed on a backlog during an iteration.



## Support Team Task Accountability

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### Show Roles and Responsibilities

#### RAM/RACI

Some accountabilities are set and nontransferable, even on agile teams. Can anyone give an example?

**Responsibility assignment matrix (RAM):**

- Describes participation by various project roles in completing work or deliverables
- Clarifies roles and responsibilities
- Uses **RACI** nomenclature:
  - Responsible:** Does the work
  - Accountable:** Approves completion
  - Consult:** Gives expert opinion
  - Inform:** Kept up to date

Project manager creates RAM/RACI.
 Project manager or team lead works with team to make decisions about roles and responsibilities.

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## Show Roles and Responsibilities: RAM/RACI

### Leadership and management roles

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### Responsibility assignment matrix

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Some accountabilities are set and not transferable, even on agile teams. Can you give an example?

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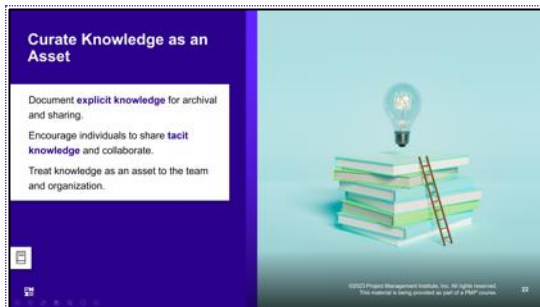


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## Curate Knowledge as an Asset

### Explicit knowledge

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### Tacit knowledge

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### Additional notes:

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## Incorporate Knowledge Transfer

### Community of practice (COP)

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### Work shadowing

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### Additional notes:

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**Knowledge Management Three Levels**

**Individual**  
What do team members need to know to perform project work?

Acquire required knowledge through research and collaboration with other team members

**Project**  
What's required to achieve project goals?

Transfer knowledge from other projects and consult the project management office (PMO)

**Organization**  
What's required to manage programs or portfolios?

Adapt knowledge from other programs/portfolios and tailor

## Knowledge Management: Three Levels

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Individual What do team members need to know to perform project work?	
Project What's required to achieve project goals?	
Organization What's required to manage programs or portfolios?	

**Learn the Right Way to Motivate Your Team**

**DO**

- Inspire and motivate yourself and the team – provide opportunities, not obligations
- Give virtual teams constant and regular contact
- Provide appropriate training opportunities
- Try self-assessment and reflective moments for professional growth

**DON'T**

- Overwhelm with meetings and work interruptions
- Distract with non-project work
- Force group activities



## Learn the Right Way to Motivate Your Team

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DO: 	DON'T: 



### Continuously Realign Team Efforts with Value Delivery



Tuckman's ladder

Prioritize team cohesion and focus on value delivery

As team members or external parties join or depart, or during change or disruption, support the team as it realigns itself

- Welcome each new member as a potential **source of new knowledge and motivation**
- Ensure **shared understanding** of project goals and agreements
- Collaborate to find out how they can **add value**
- Navigate disruptions and conflict constructively

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## Continuously Realign Team Efforts with Value Delivery

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### Check on Artifact Maintenance

- Make it part of regular quality checks
- Keep file storage organized and versioned
- Ensure compliance with data protection and security mandates
- Maintain artifacts in preparation for archiving during project closure



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## Check on Artifact Maintenance

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### ECO Coverage

#### 2.2 Manage communications

- Communicate project information and updates effectively (2.2.3)
- Confirm communication is understood and feedback is received (2.2.4)

#### 1.4 Empower team members and stakeholders

- Support team task accountability (1.4.2)
- Evaluate demonstration of task accountability (1.4.3)

#### 1.6 Build a team

- Continuously assess and refresh team skills to meet project needs (1.6.3)
- Maintain team and knowledge transfer (1.6.4)

#### 1.11 Engage and support virtual teams

- Continually evaluate effectiveness of virtual team member engagement (1.11.4)

#### 2.11 Manage project artifacts

- Continually assess the effectiveness of the management of the project artifacts (2.12.3)

#### 2.13 Determine appropriate project methodology/methods and practices

- Use iterative, incremental practices throughout the project life cycle (e.g., lessons learned, key stakeholder engagement, risk) (2.13.4)

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## End of Topic 5B

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## TOPIC 5C | EVALUATE PROJECT PROGRESS

### ECO Coverage

- 2.8 Plan and manage scope
  - Monitor and validate scope (2.8.3)
- 2.6 Plan and manage schedule
  - Measure ongoing progress based on methodology (2.6.4)
  - Modify schedule, as needed, based on methodology (2.6.5)
  - Coordinate with other projects and other operations (2.6.6)
- 2.5 Plan and manage budget and resources
  - Monitor budget variations and work with governance process to adjust as necessary (2.5.3)
- 2.1 Execute project with the urgency required to deliver business value
  - Examine the business value throughout the project (2.1.2)
- 2.7 Plan and manage quality of products/deliverables
  - Continually survey project deliverable quality (2.7.3)
  - Recommend options for improvement based on quality gaps (2.7.2)


	<h3>Topic 5C: Evaluate Project Progress</h3> <p>In this topic, we'll learn how to measure project progress and set it up for success.</p>
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### Guidelines to Measuring Performance

"Only Measure What Matters"

- John Doerr



Tailor performance measurement to the project context and stakeholders:

- **Scope**
  - Percentage of work completed
  - Change requests
- **Schedule**
  - Actual duration of work against projected start and finish dates
- **Budget**
  - Actual costs
  - Check procurements are sufficient for needs
- **Resources**
  - Team allocations/availability/procurement
  - Performance appraisals – team, including vendors
  - Contract management
- **Quality**
  - Technical performance
  - Defects
- **Risk**
  - Risk register

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## Guidelines to Measuring Performance

### Scope

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### Schedule

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### Budget

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### Resources

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### Quality

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### Risk

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### Report on Performance

Tailor If Required

<b>Milestone schedule</b>	High-level visualization of progress on work against planned dates
<b>Quality reports</b>	Charts and reports based on the quality metrics collected
<b>Earned value management (EVM) reports</b>	Graphs and values based on EVM equations
<b>Variance analysis reports</b>	Graphs and their analysis comparing actual results to expected results.
<b>Work performance reports</b>	Physical or electronic representation of work performance information compiled in project documents, intended to generate decisions, actions, or awareness.
<b>Dashboards</b>	Physical or electronic progress summaries, usually with visuals or graphics to represent the larger data set

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## Report on Performance: Tailor if Required

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Milestone schedule	
Quality reports	
Earned value management (EVM) reports	
Variance analysis reports	
Work performance dashboards	

### Monitor Scope

Description of Scope	Method
<b>Scope baseline is:</b> <ul style="list-style-type: none"> <li>Approved version of the project scope statement</li> <li>Work breakdown structure (WBS)</li> <li>Associated WBS dictionary</li> </ul>	<b>Measure completion of project scope against the scope baseline.</b>
<b>Scope evolves from:</b> <ul style="list-style-type: none"> <li>Initial product roadmap to</li> <li>Release backlog to</li> <li>Iteration backlogs</li> </ul> <b>Backlogs</b> (including product features and functions and user stories) reflect identified, updated and reprioritized product needs	<b>Check user stories and DoD against customer feedback and product requirements</b>
Any combination of the above	

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## Monitor Scope

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


**Scope Validation**  
Customer Accepts Completed Deliverables




Acceptance criteria

- Definition of ready (DoR)
- Definition of done (DoD)
- Acceptance criteria
- Iteration reviews



In a predictive development approach, which artifact helps determine the acceptance criteria?

- Responsibility traceability matrix
- Scope statement
- Team charter
- Stakeholder engagement plan



In an adaptive development approach, what helps determine that the acceptance criteria for user stories has been met?

- Product roadmap
- Definition of done
- Release plan
- Kanban board

Any combination of the above




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# Scope Validation: Customer Accepts Completed Deliverables

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	How does the customer accept the deliverables in each type of life cycle?
	
	
	



Now let’s check that you learned!

Answers are on the next page.

- In a predictive development approach, which artifact helps determine the acceptance criteria?
  - Responsibility traceability matrix
  - Scope statement
  - Team charter
  - Stakeholder engagement plan



2. In an adaptive development approach, what helps determine that the acceptance criteria for user stories have been met?
- Product roadmap
  - Definition of done
  - Release plan
  - Kanban board

## Measure Schedule Performance

### Methods

**Gantt charts:** Schedule performance tracking over time

**Earned value:** Cost and effort performance tracking against planned value (PV)

**Quality metrics:** Track quality deliverables, defects and acceptable output

**Variance analysis:** Shows where the project is against where it should be

- Compare work delivered and accepted to estimations for the current iteration/sprint
- Review completed work in regular sprint demos
- Determine production, validation, and acceptance rates for deliverables in retrospectives
- Conduct scheduled reviews to record retrospective discoveries

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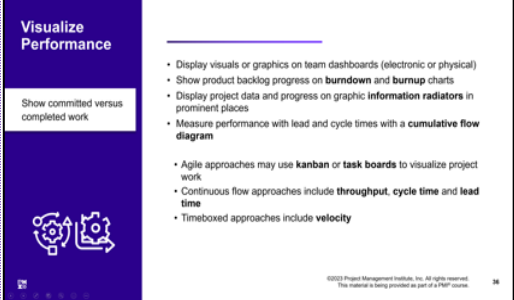
## Measure Schedule Performance

### Earned value (EV)

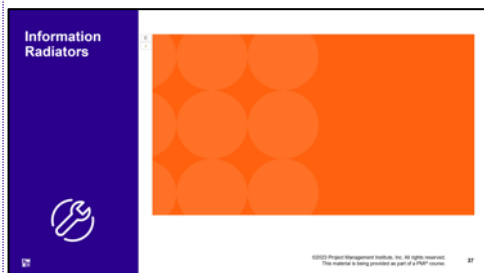
### Quality metric

### Variance analysis



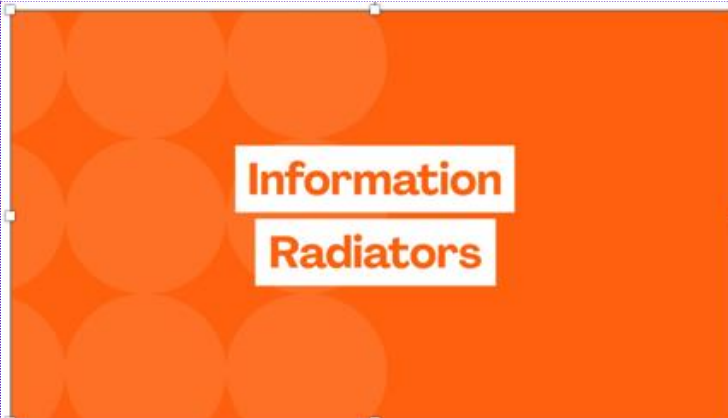
	<hr/> <hr/>
<p>Answers to scope validation quiz</p>	<p>B. Scope statement B. Definition of done</p>
 <p><b>Schedule Management Tools</b></p> <ul style="list-style-type: none"> <li>Adjust schedule to reflect resource supply/demand</li> <li>Use smoothing and leveling</li> <li>Use schedule compression techniques, including fast tracking and crashing</li> </ul>	<p><b>Schedule Management Tools</b></p> <p>List and describe some schedule management tools used in predictive approaches:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
 <p><b>Visualize Performance</b></p> <p>Show committed versus completed work</p> <ul style="list-style-type: none"> <li>Display visuals or graphics on team dashboards (electronic or physical)</li> <li>Show product backlog progress on <b>burndown</b> and <b>burnup</b> charts</li> <li>Display project data and progress on graphic <b>information radiators</b> in prominent places</li> <li>Measure performance with lead and cycle times with a <b>cumulative flow diagram</b></li> <li>Agile approaches may use <b>kanban</b> or <b>task boards</b> to visualize project work</li> <li>Continuous flow approaches include <b>throughput</b>, <b>cycle time</b> and <b>lead time</b></li> <li>Timeboxed approaches include <b>velocity</b></li> </ul>	<p><b>Visualize Performance</b></p> <p>Explain how we show committed versus completed work:</p> <hr/> <hr/> <hr/> <hr/> <hr/>





Duration 2m 34s

*We already learned about how to use information radiators to create transparency and collaborative spaces and environments. This video show how to use information radiators to monitor, communicate, and be able to act on project progress and work.*



## Information Radiators Video

A look at the information radiators and the value they provide.

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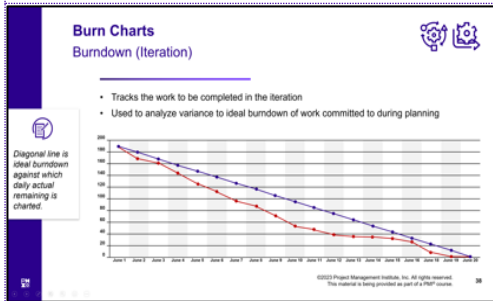
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## Burns Charts: Burndown (Iteration)

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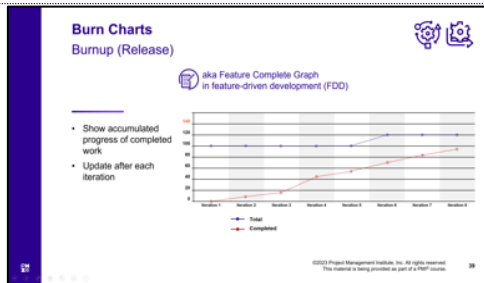
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## Burns Charts: Burnup (Release)

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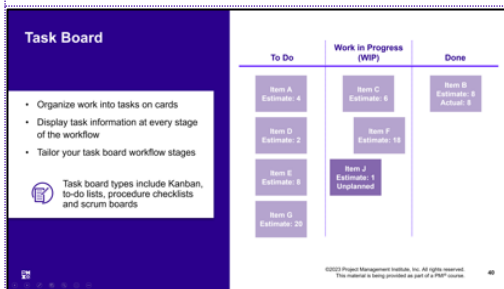
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## Task Board

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- New/changed project requirements
- New risks, or changes to the probabilities or impacts of existing risks
- Changes to cost estimates

- New/changed project requirements
- New risks, or changes to the probabilities or impacts of existing risks
- Changes to cost estimates

[illegible]

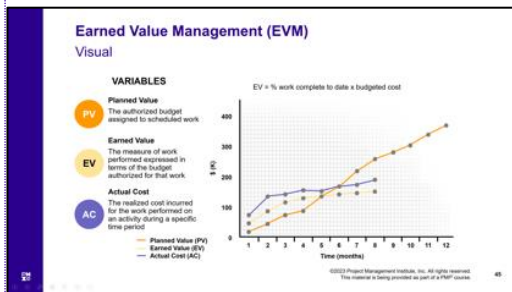


### Earned Value Management (EVM)



- Measure project progress by comparing actual schedule and cost performance against planned performance, per the schedule and cost baselines
- Evaluate progress of schedule and budget
- Prevent further degradation of budget or schedule

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## Earned Value Management (EVM) – two slides

### Define and describe EVM

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### Planned value

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### Earned value

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### Actual cost

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## EVM Measures for Schedule Control

Is the project progressing on schedule?

**Schedule variance** measures performance – by calculating the difference between EV and PV

$$SV = EV - PV$$

project BEHIND schedule  
project AHEAD of schedule  
SV value = 0  
project on schedule

How efficiently is the team working?

**Schedule performance index** measures efficiency by calculating the ratio of EV to PV

$$SPI = EV / PV$$

project BEHIND schedule  
project AHEAD of schedule  
SPI value = 1.0  
project on schedule

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## EVM Measures for Schedule Control

Make note of definitions and formulas!

Schedule variance - Is the project progressing on schedule?

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Schedule performance index - How efficiently is the team working?

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## EVM Measures for Cost Control

Is the project on budget?

Calculate **cost variance (CV)** to find the current amount of budget deficit/surplus

$$CV = EV - AC$$

project OVER budget  
project UNDER budget  
CV value = 0  
project on budget

How efficient is my project?

Calculate **cost performance index (CPI)** to measure the cost efficiency of budgeted resources

$$CPI = EV / AC$$

project OVER budget  
project UNDER budget  
CPI value = 1.0  
project on budget

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## EVM Measures for Cost Control

Make note of definitions and formulas!

Cost variance - Is the project on budget?

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Cost performance index - How efficient is my project?

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### EAC/ETC Analysis

Are more funds required?

What will the project cost in total?

Use Estimate At Completion (EAC)

Based on:

- CPI: current spending efficiency
- BAC: budget at completion

Formula

$$EAC = \frac{BAC}{CPI}$$

How much more cost is required to complete the remainder of the project?

Use Estimate To Complete (ETC)

Based on:

- CPI
- AC - actual cost

Formula

$$ETC = EAC - AC$$

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## EAC/ETC Analysis

EAC – Estimate at completion

ETC – Estimate to complete

- Are more funds required
- What will the project cost in total?
- How much more is required to complete the planned work?

Make note of definitions and formulas!

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EVM

Enables comparison of release plan against the actual work done

Helps teams spot any problem areas and ensure they stay on schedule and within budget.

**Example Process:**

1. Establish a performance measurement baseline (PMB) to create a reference point for the metric
2. Answer three questions:
  - How many iterations are planned?
  - How many story points are there?
  - What is the release budget?
3. Collect data at the end of every iteration:
  - **Planned value (PV):** Budget for planned work in an iteration
  - **Earned value (EV):** Budget for completed work in an iteration
  - **Actual cost (AC):** Actual cost incurred to complete an iteration deliverable

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## EVM

Here we consider how EVM can be used and the benefits in different kinds of projects.

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Manage and Lead Resources

- Include team and external contractors
- Monitor for risks — e.g., cost overruns, schedule delays or potential disputes
- Conduct checks on contracts:
  - Procurement process compliance
  - Periodic progress or activity reports
  - Required advance notification and acknowledgment to suppliers
  - Formal acceptance of contracted deliverables
- Notify accounts payable of completed work so that payments can be made

Consult the communications management plan and contract terms and conditions for vendor/supplier working provisions.

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## Manage and Lead Resources

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Physical Resource Management

- Means physical resources (not human)
  - Equipment
  - Materials
  - Facilities
  - Infrastructure
- Ensures assigned resources are available "just in time" (JIT) and released when no longer needed
- Ensures physical resources assigned are available as planned
- Monitors planned vs actual utilization of resources
- Performs processes throughout the project

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## Physical Resource Management

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Update Resource Allocation

- What has been used to date?
- What is still needed?
- Review performance usage to date, including:
  - Monitoring expenditures
  - Identifying and dealing with resource shortage/surplus in a timely manner
  - Ensuring resource use and release
  - Informing stakeholders of issues with relevant resources
  - Influencing factors that can create changes in resource utilization
  - Managing changes as they occur
- Changes that impact schedule or cost baselines must be approved through Perform Integrated Change Control.

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# Update Resource Allocation

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Handle Changes and Contract Disputes

When change is required, follow your project's change process:

- Perform Integrated Change Control
- Backlog reprioritization

For contract disputes, consult OPAs and the contractual agreement first.

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# Handle Contract Changes and Disputes

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Quality Management Guidelines

- Assess quality of project approaches and activities
- Evaluate deliverable quality through inspection and testing
- Evaluate quality of project activities and processes through reviews and audits
- Focus on detecting and preventing errors and defects

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# Quality Management Guidelines

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## Evaluate and Manage Quality



- Project manager uses Control Quality process to:
  - **Verify** that deliverables meet functional and nonfunctional requirements
  - **Identify and suggest improvements**
  - **Verify alignment** with compliance requirements
  - **Give feedback** on any identified variances
  - **Identify potential approaches** to cure defects or other noncompliance
- **And continuously monitors quality reports and recommendations!**



- Team, customer and product owner are responsible for setting and meeting quality goals and metrics
- Feedback from iterations continuously monitor quality
- Measure performance of quality with:
  - Service-level agreements (SLAs)
  - KPIs
  - Contractual measures
- Quality methods/frameworks — e.g., Lean Six Sigma

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## Evaluate and Manage Quality



Predictive



Adaptive



**Quality Audit\***

May be scheduled or conducted ad hoc

Topics include:

- Quality management policy
- Collection and use of information
- Analytical methods
- Cost of quality
- Quality process design

 Use audits to enhance or formalize the quality management complement in adaptive development approaches.

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## Quality Audit

### Define and describe

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### Additional notes:

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**Control Quality Tools**

**Data gathering**


- Checklists/check sheets
- Statistical sampling
- Questionnaires and surveys

**Data analysis**

- Performance reviews
- Root cause analysis

**Data representation**

- Cause-and-effect diagram
- Scatter diagrams
- Control charts
- Histograms
- Pareto chart



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## Control Quality Tools

List the tools used to control quality in the following tasks:

### Data gathering

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### Data analysis

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## Data representation

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### Control Quality Process Example

1. Use check sheets to collect data
2. Plot data on a histogram
3. Understand the significant ones using the Pareto chart (80/20 rule)
4. Use the cause-and-effect analysis on the chosen problems/solutions
5. Finally, perform a scatter analysis to understand the correlation



## Control Quality Tools: Example

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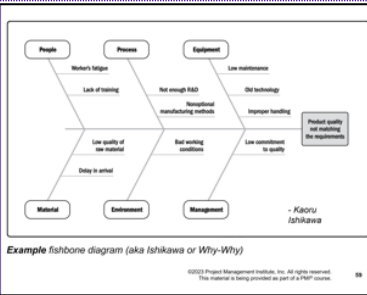
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### Data Visualization Quality Tool - Cause and Effect Diagram

Break down the problem statement to identify causes in discrete branches

Keep asking "why" to help identify the main or root cause of the problem



Example fishbone diagram (aka Ishikawa or Why-Why)

## Data Visualization: Quality Tool—Cause and Effect Diagram

What is this diagram also called?

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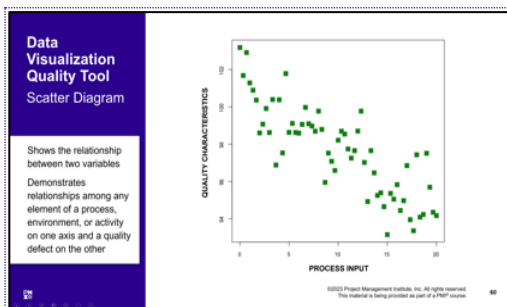
Explain how to use this diagram.

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## Data Visualization: Quality Tool — Scatter Diagram

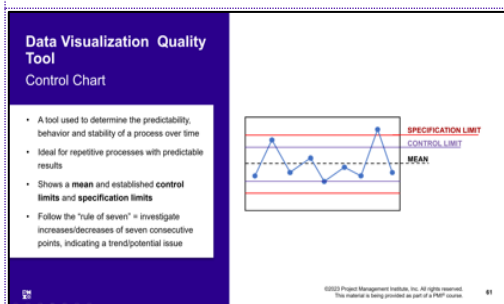
Explain how to use this tool.

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## Data Visualization: Quality Tool — Control Chart

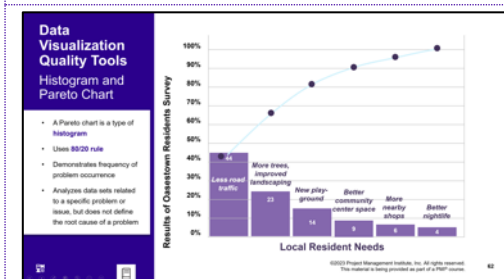
Explain how this tool works

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## Data Visualization: Quality Tool — Histogram and Pareto Chart

Explain how this tool works

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### Ensure Quality of Processes and Product

Quality is closely linked to the product acceptance criteria, as described in the statement of work (SOW) or other design documents.

Update these criteria as experimentation and prioritization occur and then validate them as part of the acceptance process.

### Ensure Quality of Processes and Product

During project execution, we create, update, and validate the quality of project processes and products.

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### Verify Deliverables

- Project team verifies deliverables based on quality standards and requirements:
  - Quality metrics
  - Tolerance
- The verified deliverables are presented to and accepted (validated) by the customer – resulting in accepted deliverables
- Measure products and outputs against the project's quality standards
- Implement corrections and controls when quality standards are neither met nor within acceptable ranges
  - Iteration H (agile) – quality assurance cycle
  - Sprint/iteration review in Scrum

### Verify Deliverables

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### Evaluate and Manage Risk

- Adaptive development approaches incorporate risk management in iterative and incremental practices.
- Predictive risk management approaches are methodical.
- (Optional)  
Can you identify some typical risk management practices or use cases for each approach?



## Evaluate and Manage Risk

How do you know that risk management is adequate/working for a project?

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Can you identify some typical risk management practices that keep projects progressing fluidly?

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### Monitor Risks

#### GUIDELINES

- Enable decision-making based on current information about overall risk exposure and individual risks
- Continuously monitor status, probability and impact
- Identify new risks
- Reassess current risks
- Close outdated risks
- Perform on a regular basis
- Continuously improve risk effectiveness

#### QUESTIONS TO ASK

- Are project assumptions still valid?
- Have risks changed or been retired?
- Are risk management policies and procedures being followed?
- Have contingency reserves been modified?
- Do we need a risk audit?

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## Monitor Risks

### Guidelines

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### Questions to ask

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### Review your Reserves

#### Reserve analysis:

- Establishes the amount of contingency and management reserves needed
- Is performed throughout the project
- Compares amount remaining to determine if adequate
- May be communicated with a burndown chart

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## Review Your Reserves

### Reserve analysis

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### Additional notes:

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### Risk Register

- Add risks raised during status meetings, standups or daily scrums, iteration reviews, retrospectives – or even informally – to the risk register
- Update newly identified and existing risks based on the current knowledge and situation

Agile teams may use a risk list or log, similar to a risk register



## Risk Register

### Guidelines

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### Interactive/Discussion



When you think about risks in a project, which do you think are the most serious?

How do you know?



## Risk Management Discussion

When you think about risks in a project, which do you think are the most serious? How do you know?

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Manage Compliance as the Highest Priority

- Test and validate deliverables (continuously and at project/ phase end)
- Identify authorized stakeholders to approve
- Remediate compliance issues to avoid:
  - Negative impact on the timeline
  - Cost overruns
  - Increased risks
- Benefits of compliance sign-off:
  - Early warning of potential threats to compliance
  - Ability to capture variances and take action

## Manage Compliance as the Highest Priority

### Guidelines for managing compliance

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Examine Business Value

- Connects Ways of Working with Business Acumen
- Tailor work processes, approaches and tools along with leadership skills to examine and improve value delivery

How often and how well does your project team really focus efforts on examining the business value of the project?

## Examine Business Value

How often and how well does your project team really focus efforts on examining the business value of the project during execution? How could you improve this?

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ECO Coverage

- 2.8 Plan and manage scope
  - Monitor and validate scope (2.8.3)
- 2.6 Plan and manage schedule
  - Measure ongoing progress based on methodology (2.6.4)
  - Modify schedule, as needed, based on methodology (2.6.5)
  - Coordinate with other projects and other operations (2.6.6)
- 2.5 Plan and manage budget and resources
  - Monitor budget variations and work with governance process to adjust as necessary (2.5.3)
- 2.1 Execute project with the urgency required to deliver business value
  - Examine the business value throughout the project (2.1.2)
- 2.7 Plan and manage quality of products/deliverables
  - Continually survey project deliverable quality (2.7.3)
  - Recommend options for improvement based on quality gaps (2.7.2)

## End of Topic 5C

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## TOPIC 5D | MANAGE PROJECT ISSUES AND IMPEDIMENTS

### ECO Coverage

#### 2.15 Manage project issues

- Recognize when a risk becomes an issue (2.15.1)
- Attack the issue with the optimal actions to achieve project success (2.15.2)
- Collaborate with relevant stakeholders on the approach to resolve the issues (2.15.3)

#### 1.7 Address and remove impediments, obstacles, and blockers for the team

- Determine critical impediments, obstacles, and blockers for the team (1.7.1)
- Prioritize critical impediments, obstacles, and blockers for the team (1.7.2)
- Use network to implement solutions to remove impediments, obstacles, and blockers for the team (1.7.3)
- Re-assess continually to ensure impediments, obstacles and blockers for the team are being addressed (1.7.4)



### Topic 5D: Manage Project Issues and Impediments

Change is inevitable, but it is rarely insurmountable. Let's look at strategies, tools, and techniques for managing project changes!




## Problem Vocabulary Impediments, Obstacles and Blockers

**Obstacle removal.** Since it is the project team who generates the majority of business value, a critical role for the servant leader is to maximize delivery by removing **impediments** to their progress. This includes solving **problems** and removing **obstacles** that may be hampering the project team's work. By solving or easing these **impediments**, the project team can deliver value to the business faster.

**Remove obstacles** (Step 5 in the Process for Leading Change)

All change comes with **obstacles**. Sometimes the **obstacles** are outdated processes, sometimes they are based on the organizational structure, and sometimes they are people resistant to change. Regardless, all **obstacles** need to be addressed.  
- PMBOK® Guide – 7th Edition

 'Impediment' and 'blocker' are synonyms; they both mean, "an **obstacle** that prevents the team from achieving its objectives."

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## Problem Vocabulary: Impediments, Obstacles and Blockers

Describe the role of the servant leader (project manager) in removing obstacles for the team:

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## Issue or Impediment? Just Solve the Problem!

- **Issue:** A condition or situation that may have an impact on the project objectives.
- **Impediment:** An obstacle that prevents the team from achieving its objectives. Also known as a blocker.

 Predictive teams use the term issue log

 Adaptive teams tend to use an impediment log.

 This term is related to Scrum.

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## Issue or Impediment? Just Solve the Problem

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*The difference between the terms 'issue log' and 'impediment log' is primarily due to use of the Scrum framework. However, adaptive teams tend to use the term 'impediment log' while predictive teams use 'issue log'.*

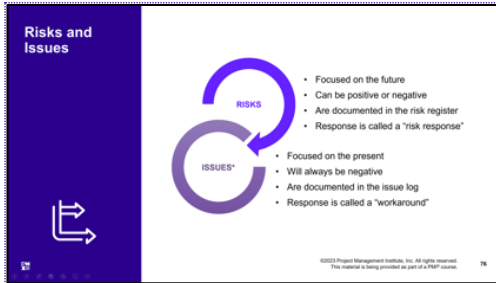
Guidelines for use:

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## Risks and Issues

Ensure you understand the relationship between risks and issues.

- A risk is generally defined as an event that might impact a project.
- An issue is a risk that has happened and will impact the project.
- An issue can also just happen, without a known risk being present – these kinds of issues arise from unknown factors

### Risks

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### Issues

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## Issues

These are the areas in a project that are prone to issues:

- Scope change control
- Schedule control
- Cost control
- Project variance analysis
- Quality
- Risk
- Procurement
- Communications

*Can you think of some examples?*

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### Issue Resolution Guidelines

Track problems, inconsistencies or conflicts and conduct investigation towards resolution

- As issues arise, promptly add them to the **issue log**.
- Assign an owner to each issue
- Give realistic due dates
- Discuss issues at every status meeting
- Limit open issues to a manageable number
- Don't hesitate to escalate if effects are major!

ID	Description	Opened	Due Date	Priority	Owner	Response	Status	Comments
25	Truck strike	15 Jan 20xx	01 Feb 20xx	High	A. Fen	TBD	Open	Tasks are on the critical path
26	Glazing service down	15 Jan 20XX	01 Feb 20xx	Med	Gen Contractor	working	open	Looking into another supplier
27	Josie Bynoe dissatisfied	15 Jan 20xx	01 Feb 20xx	High	A. Fen	working	open	Risks board withholding operating funds

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## Issue Resolution: Guidelines

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ID	Description	Opened	Due Date	Priority	Owner	Response	Status	Comments
25	Truck strike	15 Jan 20xx	01 Feb 20xx	High	A. Fen	TBD	Open	Tasks are on the critical path
26	Glazing service down	15 Jan 20XX	01 Feb 20xx	Med	Gen Contractor	working	open	Looking into another supplier
27	Josie Bynoe dissatisfied	15 Jan 20xx	01 Feb 20xx	High	A. Fen	working	open	Risks board withholding operating funds

*This example issue log uses activities from the Shawpe project case study.*

### Discover and Solve Impediments Using Scrum

Steps:

- Discover the problem/cause
- Solve it. The scrum master is responsible for finding a resolution with concerned parties.
  - Often involves dealing with conflict somewhere in the organization
  - Resolution can help the organization grow in agility

## Discover and Solve Impediments Using Scrum

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### Remove Impediments Overview

- Track impediments
- Reprioritize product backlog
- Use daily standup meeting
- Be a servant leader

## Remove Impediments: Overview

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### Discussion

How does your team solve problems?

## Discussion

How does your team solve problems?

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### ECO Coverage

**2.15 Manage project issues**

- Recognize when a risk becomes an issue (2.15.1)
- Attack the issue with the optimal actions to achieve project success (2.15.2)
- Collaborate with relevant stakeholders on the approach to resolve the issues (2.15.3)

**1.7 Address and remove impediments, obstacles, and blockers for the team**

- Determine critical impediments, obstacles, and blockers for the team (1.7.1)
- Prioritize critical impediments, obstacles, and blockers for the team (1.7.2)
- Use network to implement solutions to remove impediments, obstacles, and blockers for the team (1.7.3)
- Re-assess continually to ensure impediments, obstacles and blockers for the team are being addressed (1.7.4)

## End of Topic 5D

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## TOPIC 5E | MANAGE PROJECT CHANGES

### ECO Coverage

- 3.3 Evaluate and address external business environment changes for impact on scope
  - Survey changes to external business environment (e.g., regulations, technology, geopolitical, market) (3.3.1)
  - Assess and prioritize impact on project scope/backlog based on changes in external business environment (3.3.2)
  - Recommend options for scope/backlog options (e.g., schedule, cost changes) (3.3.3)
  - Continually review external business environment for impacts on project scope/backlog (3.3.4)
- 2.10 Manage project changes
  - Anticipate and embrace the need for change (e.g., follow change management practices (2.10.1)
  - Execute change management strategy according to the methodology (2.10.3)
  - Determine a change response to move the project forward (2.10.4)



### Topic 5E: Manage Project Changes

Change is inevitable, but it is rarely insurmountable. Let's look at strategies, tools, and techniques for managing project changes!



### Interactive/Discussion

- What constitutes a change in a project?
- Can a change come from anywhere?
- How does the life cycle and development approach affect our response to change?

## Interactive/Discussion

Which constitutes a change in a project?

Can a change come from anywhere?

How does the life cycle and development approach affect our response to change?

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### Causes of Project Changes

- Inaccurate initial estimates
- New regulations
- Missed requirements
- Specification changes

Are any of these also causes of changes in adaptive projects?

## Causes of Project Changes

Typical causes for changes in predictive projects:

- Inaccurate initial estimates
- New regulations
- Missed requirements
- Specification changes

Are any of these also causes of changes in adaptive projects?

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### Be a Changemaker and a Change Leader



Which of the project management principles deal with the subject of change?

- Be a diligent, respectful and caring steward
- Recognize, evaluate and respond to system interactions
- Navigate complexity
- Create a collaborative project team environment
- Demonstrate leadership behaviors
- Optimize risk responses
- Effectively engage with stakeholders
- Tailor based on context
- Embrace adaptability and resiliency
- Focus on value
- Build quality into processes and deliverables
- Enable change to achieve the envisioned future state



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Explore PMI's [Make Reality hub](#), the virtual home of changemakers!

## Be a Changemaker and a Change Leader


- Be a diligent, respectful, and caring steward
- Recognize, evaluate, and respond to system interactions
- Navigate complexity
- Create a collaborative project team environment
- Demonstrate leadership behaviors
- Optimize risk responses
- Effectively engage with stakeholders
- Tailor based on context
- Embrace adaptability and resiliency
- Focus on value
- Build quality into processes and deliverables
- Enable change to achieve the envisioned future state

How many of these project management principles are associated with the concept of change?

### Monitor the External Business Environment

Change can bring negatives as well as positives, such as opportunities to add or extend value!

- Monitor the external environment
- Remain vigilant for threats
- Constantly update the risk register and thresholds
- Use tools



- PESTLE
- TECOP
- VUCA

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## Monitor the External Business Environment

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## Manage Change Overview and Controls

Overview	Controls
<ul style="list-style-type: none"> <li>Perform Integrated Change Control linear process</li> </ul>	<ul style="list-style-type: none"> <li>Perform Integrated Change Control process</li> <li>Change request process</li> <li>Change control board (CCB)</li> <li>Artifact management (updates)</li> </ul>
<ul style="list-style-type: none"> <li>Feedback and development cycle</li> </ul>	<ul style="list-style-type: none"> <li>Product owner role - key decision maker and runs backlog</li> <li>Everyone participates in backlog refinement</li> <li>Use demos to understand requirements</li> <li>No changes allowed during a sprint</li> </ul>
Any of the above	

## Manage Change: Overview and Controls

Notes on change controls across development approaches

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## Change Management Process Flowchart



## Change Management Process Flowchart

Effective change control system includes:

- Forms
- Tracking methods - a change log updated at each step
- Processes
- Approval levels required for authorizing or rejecting requested changes

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Every change request ends in one of two ways — either it is rejected, or the project is rebalanced. Explore the change management process pathways in the diagram.



### Change Requests

Four Types

Can you think of examples of each kind for the Shawpe project?

- **Corrective action** - Adjusts the performance of the project work with the project management plan
- **Preventive action** - Ensures future performance of the project work with the project management plan
- **Defect repair** - Modifies a nonconformance within the project
- **A change** - Modifies a project baseline

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## Change Requests: Four Types

- Corrective action

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- Preventive action

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- Defect repair

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- A change

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Change Control Systems  
Change Control Board

Forms, tracking methods, processes, and approval levels required for authorizing or rejecting requested changes.

One approval level may be the **Change control board (CCB)** which handles some change requests based on the approval levels documented in the change management plan.

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## Change Control Systems: Change Control Board

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### Change control board

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Manage Contract Changes and Resolve Problems

- Work with the vendor to manage contract changes
- Work with partners in the organization (procurement, finance, functional departments) and take action within the project manager's or team's domain/threshold
- Legal problems that are serious enough to cause issues may need expert help

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## Manage Contract Changes and Resolve Problems

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Contract Change Control System

The system used to collect, track, adjudicate and communicate changes to a contract

- Might be a component of the integrated change control or a separate organizational system
- Specifically dedicated to control contract changes
- Specifies contract change
- Includes documentation, dispute-resolution processes and approval levels

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## Contract Change Control System

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**Types of Contract Changes**

Which kinds of changes do you think are more likely to cause conflict? Why? How can these be avoided?

Component	Description
Administrative changes	Non-substantive changes, usually about contract administration method
Contract modification	Substantive change to contract requirements or product requirements
Supplemental agreement	An additional agreement related to the contract but negotiated separately
Constructive changes	Changes made by the buyer through action or inaction
Termination of contract	Vendor default or buyer's need changes

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*Which kinds of changes do you think are more likely to cause conflict? Why? How can these be avoided?*

## Types of Contract Changes

Component	
Administrative changes	
Contract modification	
Supplemental agreement	
Constructive changes	
Termination of contract	

**Legal Concepts When Managing Disputes**

Seek legal advice if the terms of a contract have not been met. Negotiate settlements to arrive at a final equitable settlement of all outstanding issues, claims, and disputes by negotiation.

Legal Issue	Description
Warranty	A promise, explicit or implied, that goods or services will meet a pre-determined standard. The standard may cover reliability, fitness for use, and safety.
Waiver	A legally binding provision in which one party in a contract agrees to forfeit a claim without the other party becoming liable, even inadvertently.
Breach of contract	Failure to meet some or all the obligations of a contract. It may result in damages paid to the injured party, litigation or other ramifications.
Cease and desist (C&D) letter	A letter sent to an individual or a business to stop (cease) allegedly illegal activities and to not undertake them again (desist). Often used as a warning of impending legal action if it is ignored.

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## Legal Concepts When Managing Disputes

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Process, Adjudicate and Communicate Claims

- Contested changes and potential constructive changes, including:
  - Lack of agreement on compensation for change
  - Lack of agreement that change occurred
- If not resolved, handle through alternative dispute resolution (ADR) established in contract
- Settlement through negotiation is preferred
- The "last resort" is litigation

# Process, Adjudicate, and Communicate Claims

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What kinds of changes do you think are more likely to cause conflict? Why? How can these be avoided?

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Update Project Management Plan

Based on the scope of changes, you may need to update:

- Scope
- Timelines
- Work packages
- Team member assignments

Agile teams might remove lower-value deliverables from the scope to make room for the change.

# Update Project Management Plan

## Describe the final steps in processing a change

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ECO Coverage

3.3 Evaluate and address external business environment changes for impact on scope

- Survey changes to external business environment (e.g., regulations, technology, geopolitical, markets) (3.3.1)
- Assess and prioritize impact on project scope/backlog based on changes in external business environment (3.3.2)
- Recommend options for scope/backlog options (e.g., schedule, cost changes) (3.3.3)
- Continually review external business environment for impacts on project scope/backlog (3.3.4)

2.10 Manage project changes

- Anticipate and embrace the need for change (e.g., follow change management practices) (2.10.1)
- Execute change management strategy according to the methodology (2.10.3)
- Determine a change response to move the project forward (2.10.4)

End of Topic 5E

End of Lesson 5

End of Lesson 5





## Lesson 6: Closing the Project/Phase

### Description

Regardless of whether the project is completed successfully or cancelled prematurely, there are several activities that should be performed to close out the work.



## Learning Objectives

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- Define the reasons and activities related to the closure of a phase or a project.
- Explain the benefits gained from a project or phase, and how they are managed, sustained, etc.
- Examine the reasons for knowledge transfers and how they relate to the closure of a phase or project.

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## Topics

- A. Project phase/closure
- B. Benefits realization
- C. Knowledge transfer

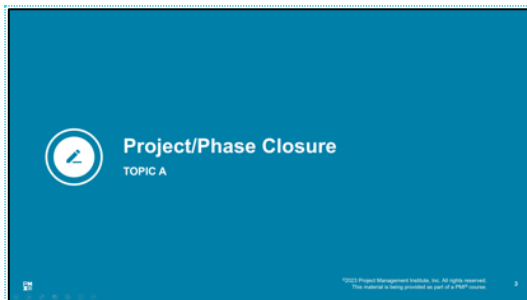


# Lesson Notes

## TOPIC 6A | PROJECT PHASE/CLOSURE

### ECO Coverage

- 1.8 Negotiate project agreements
  - Verify objective(s) of the project agreement is met (1.8.3)
- 2.17 Plan and manage project/phase closure or transitions
  - Validate readiness for transition (e.g., operations team or next phase) (2.17.2)
  - Conclude activities to close out project or phase (e.g., final lessons learned, retrospectives, procurement, financial, resources) (2.17.3)



### Topic 6A: Project/Phase Closure

Whether it's closure of an entire project, or an individual phase, specific activities are required. Let's start with the various reasons for closure of a phase or a project before moving on to discussing appropriate activities for the closing process.

A predictive project uses a closeout process, while teams using adaptive approaches complete work and "release" the result to the customer and then continue to the next release.



Why Projects or Phases Close  
Fulfillment

Stakeholders accept deliverables based on **acceptance criteria** established at the beginning of the project in the **project management plan**.

Acceptance criteria may be modified during a project life cycle. Use the **requirements traceability matrix** to ensure completion and approval of all requirements.

At the end of an iteration, the team and stakeholders assess the product/service against their mutually agreed **definition of done (DoD)**.

Final acceptance occurs prior to product release.

**Acceptance criteria and definition of done (DoD)** express the same status of stakeholder satisfaction with the product. Teams may use the terms interchangeably.

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# Why Phases or Projects Close: Fulfillment

## Acceptance criteria

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## Definition of Done (DOD)

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Why Projects or Phases Close  
Premature or Forced Closure

- Requirements/needs change
- Project/deliverable is no longer feasible
  - (Internal) Organization makes a change to the business case.
  - (External) A legal or regulatory change prohibits progress.
- Project/deliverable is no longer desirable
- Impediment encountered
- Financial support is not available to complete the requirements
- Risks with significant consequences make successful completion impossible

Can anyone share an example of a forced project or phase closure?

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# Why Phases or Projects Close: Premature or Forced Closure

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## Can you think of examples?

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## Close Project or Phase Activities

- Acceptance of deliverables or product by customer
- Transition of deliverables or product to customer
- Notify enterprise and organizational functions; update OPAs
- Prepare final report
- Conclude external obligations, including legal, regulatory, contractual — e.g., transfer of liability, closure of all accounts in financial system
- Archive project information
- Release resources (human, financial and physical assets)



These activities are part of the Close Project or Phase process and are typically included in the project management plan and in the WBS, under the project management function.

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## Close Project or Phase Activities

### Final report

## Transitions (Handovers)

- Some organizations use a rollout or transition plan.
- This is **not** a project management plan component.



Deliverables are handed to the customer or owner. Transition/handover specifications for deliverables are in the project management plan.



A tailored solution that delivers value — most likely in an incremental way — to the organization.



Every iteration output is handed to the product owner.

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## Transitions (Handovers)

### Do you use a rollout plan? What does it include?



Transition / Handover Readiness

Ensure your customer is ready for change and success!

Readiness may require additional change management activities to **ensure adoption** and **overcome resistance**.

Especially critical if an existing product or service is being upgraded.

Assess the readiness of all parties:

End Users

The Business

Project Team

Support Staff

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Transition/Handover Readiness

Assess the readiness of all parties, including:

- 
- 
- 
-

Transition / Handover Activities

Effective transitions or handovers of deliverables or products enable end-user awareness, increasing the likelihood of successful adoption and, therefore, of **benefits realization**.

Transition requirements can include:

- Training on the new product or service
- Documentation for the product/deliverable
- Effective communication between the project team and the organization
- Post-implementation support (aka "hypercare")

Where are the transition requirements recorded in a predictive project?

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Transition/Handover Activities

What activities are part of a transition/handover?





## Interactive/Activity

- Do you remember the difference between **explicit** and **tacit** knowledge?
- Discuss the importance of transferring both kinds of knowledge from the project team to the customer.
- Give an example of how your team has done it in the past.

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Paying and Closing Contracts


DO

- Notify the appropriate entity (usually accounts payable) when work has been fulfilled and contracts can be paid
- Pay suppliers or vendors in accordance with contract terms

Some payments may have been made during the project and the contract may have been closed

DON'T

- Delay payments until project or phase closure, unless specified in the contract

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# Paying and Closing Contracts



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DO:	DON'T:



### Finalizing Contracts

Archiving contracts means collecting, indexing and filing:

- Contract schedule
- Scope
- Quality
- Cost performance
- Contract change documentation
- Payment records and financial documents
- Inspection results
- "As-built" or "as-developed" documents, manuals, troubleshooting and technical documentation



## Finalizing Contracts

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### ECO Coverage

**1.8 Negotiate project agreements**

- Verify objective(s) of the project agreement is met (1.8.3)

**2.17 Plan and manage project/phase closure or transitions**

- Validate readiness for transition (e.g., operations team or next phase) (2.17.2)
- Conclude activities to close out project or phase (e.g., final lessons learned, retrospectives, procurement, financial, resources) (2.17.3)



## End of Topic 6A

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## TOPIC 6B | BENEFITS REALIZATION

### ECO Coverage

- 3.2 Evaluate and deliver project benefits and value
- Document agreement on ownership for ongoing benefit realization (3.2.2)
  - Verify measurement system is in place to track benefits (3.2.3)

 A blue rectangular slide with a white circular icon containing a pencil and eraser. To the right of the icon, the text "Benefits Realization" is written in white, with "TOPIC B" in smaller white text below it. At the bottom left, there is a small white logo. At the bottom right, there is small white text: "©2023 Project Management Institute, Inc. All rights reserved. This content is being presented as part of a PMI® course." and the number "14".	<h3>Topic 6B: Benefits Realization</h3> <p>Value is delivered when the customer organization can use, or realize, the requested benefits of a project.</p> <p>This is an extremely important, yet typically ignored subject. When the project is transitioned or delivered to the business, the project team is no longer involved. Benefits realization, from the perspective of the project team, is about effective planning and a delivery or release schedule that satisfies the customer's requirements.</p>
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### Early and Long-Term Benefits Realization

Some benefits are immediate while others could take a few months to years!

Benefits accrue at various stages depending on:

- Project life cycle used
- Nature of the project work
- Intended outcomes

Can you identify a type of project in which value is delivered very early?

And a project in which value is delivered months or even years after transition?

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## Early and Long-Term Benefits Realization

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Can you identify a type of project in which value is delivered very early?

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And a project in which value is delivered months or even years after transition?

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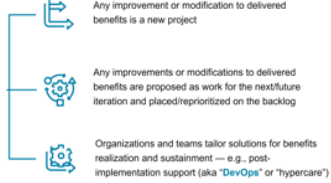


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### Benefits Transition and Sustainment Responsibilities

- Handover/transition
- Review of the benefits management plan



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## Benefits Transition and Sustainment: Responsibilities

### Benefits management plan

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### DevOps

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### Additional notes:

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Benefits Transition and Sustainment An Explanation		
Project Team	Customer	Product Owner or Project Manager
Delivers benefits to customer organization	<ul style="list-style-type: none"> <li>Ensures continued generation of improvements and delivered benefits</li> <li>Captures additional customer inputs</li> </ul>	Works with customer to identify work required for desired improvements
Provides planned performance data	Compares actual performance to planned performance, including KPIs	Uses metrics chosen with team to measure performance
Works with business owner to suggest benefits realization metrics, including frequency and monitoring responsibilities	Implements benefits realization metrics at suitable intervals, tailored to needs	Collaborates with team to determine suitable metrics
Determines if any remaining risks might prevent benefit achievement	<ul style="list-style-type: none"> <li>Identifies risks, processes and tools needed to ensure continued benefits realization</li> <li>Monitors risks affecting delivered benefits</li> </ul>	Monitors risks on impediments log and collaborates with team about response
Provides technical information required to use the product or service	Updates technical information – e.g., FAQs	Collaborates with team to update technical information

## Benefits Transition and Sustainment: An Explanation

Spend some time exploring this chart that explains how project benefits can be measured and transitioned to the customer.

Project team	Customer	Product owner or project manager



### Benefits Management Plan

A business document developed by the organization to define potential benefits from the project effort

- Is a major input to authorizing the project
- Examines the requested benefits and determines if both the tangible and intangible business value will be realized from the project
- Determines the time frame for short- and long-term benefits realization
- Identifies a benefits owner responsible for achieving the benefits, including:
  - Metrics or measurements to be used
  - Which individuals or groups measure results

**1** In the plan, determine whether any remaining project risks might prevent benefit achievement.

**2** When key stakeholders are identifying desired project benefits, let them suggest how the benefits should be measured.

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## Benefits Management Plan

Define and describe the importance of the benefits management plan

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Business document

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### Benefits Owner

- Works with project manager/team lead during the project to ensure planned benefits are managed as they are delivered
- Assists in transitioning the requested benefits to the receiving organization
- Ensures that measurement metrics and methods are established and monitored
- Reports to management on the realized results (value) of the delivered benefits

A benefits owner may be a business analyst, sponsor or operations manager.

The product owner is responsible for making sure project work reaps benefits for the organization.

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## Benefits Owner

Who can be a benefits owner?

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What is the benefit owner's role and responsibility?

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Verify Benefits Realization



- Using the chosen metrics, the product owner reports on progress for each tangible benefit.
- For intangible benefits, a subjective (qualitative) determination may be more useful.
- Reporting should include:
  - For tangible benefits—progress toward being met
  - Any benefits at risk of not being realized as planned
  - Any resulting negative impact on strategic objectives
  - Potential ending of the project team's support



In a predictive project, once the transition is complete, who is responsible for verifying that benefits are realized?

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## Verify Benefits Realization

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ECO Coverage

3.2 Evaluate and deliver project benefits and value

- Document agreement on ownership for ongoing benefit realization (3.2.2)
- Verify measurement system is in place to track benefits (3.2.3)



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## End of Topic 6B

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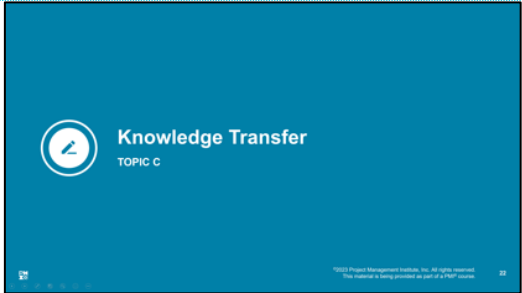
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## TOPIC 6C | KNOWLEDGE TRANSFER

### ECO Coverage

- 2.16 Ensure knowledge transfer for project continuity
- Confirm approach for knowledge transfers (2.16.3)





 A blue rectangular slide with a white circular icon containing a stylized 'K' and 'T' on the left. To the right of the icon, the text 'Knowledge Transfer' is written in white, with 'TOPIC C' in smaller white text below it. At the bottom left, there is a small white logo. At the bottom right, there is small white text: '©2023 Project Management Institute, Inc. All rights reserved. This content is being presented as part of a PM® course.' and the number '32'.	<h3>Topic 6C: Knowledge Transfer</h3> <p>Knowledge transfer occurs between team members and stakeholders during the project, but it also becomes an asset to the organization and future projects as part of the historical project information.</p> <p>This includes both the archiving of project artifacts per the OPAs as well as consolidating the individual lessons learned captured throughout the project into the organization's lessons learned repository.</p>
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## Knowledge Management During Closing

### Lessons learned register

## Conduct Project Retrospective



**Agile Retrospective**

- Internalize learning about the work product and process
- Capture key successes and challenges
- Consider qualitative (people's feelings) and quantitative (measurements) data
- Use data to find root causes, design countermeasures, and develop action plans for next time
- Praise, congratulate and motivate the team

An agile team might conduct a final retrospective, while a project manager holds a final "all-hands" meeting for the team in a predictive life cycle. These are similar ceremonies for closing a project or phase.

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Finalize Lessons Learned

Include the following topics from the project's lessons learned register in the final report:

- Scope changes
- Schedule impacts
- Risks and issues
- Stakeholder relationships
- Vendor relationships
- Artifacts
- Recommendations

Finalize Lessons Learned

Consolidating Lessons Learned

The following categories of lessons learned information are especially important at the end of a project:

- Scheduling
- Conflict management
- Sellers
- Customers
- Strategic
- Tactical

Transfer these into the lessons learned repository.

Consolidating Lessons Learned

Final Report: Summary of project/phase performance result

Description	Describe activity undertaken, including deliverables or milestones
Scope objectives	Document scope evaluation criteria and give evidence of met completion criteria
Quality objectives	Describe evaluation criteria for project and product quality. Verify objectives are met, give actual milestone delivery dates and reasons for any variances
Cost objectives	Restate acceptable cost range, give actual costs and reasons for any variances
Validation information	Include required approvals for final product, service or result—e.g., user satisfaction survey results
Schedule objectives	Verify project objectives were completed on time, report on any variance and effects of the variance
Benefits realization	State how the final product, service or result achieved the business needs and expected benefits; if partial, give details of variance and fulfillment schedule
Risks or issues encountered	List risks and issues and state how they were addressed

Final Report: Summary of Project or Phase Performance Result



Description	
Scope objectives	
Quality objectives	
Cost objectives	
Validation information	
Schedule objectives	
Benefits realization	
Risks or issues encountered	



ECO Coverage

2.16 Ensure knowledge transfer for project continuity

- Confirm approach for knowledge transfers (2.16.3)

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End of Topic 6C

End of Lesson 6

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End of Lesson 6